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ABSTRACT

This paper empirically examines one aspect of Basil Bernstein's sociolinguistic account of educational failure, a code thesis wherein a restricted code is defined as giving access only to "particularistic" meanings and an elaborated code is defined as giving access also to "universalistic" meanings. According to Bernstein, because working class children usually have only a restricted code, and the school as an institution is predicated on elaborated codes, then middle class children succeed by virtue of their elaborated code background and working class children fail. Two groups of students from the first year of an upper school in southern England, one with primarily non-manual backgrounds, the other with primarily manual backgrounds, were observed in math and science classrooms, through informal discussions with teachers, and through school records and reports to determine which of Bernstein's two codes appeared to underlie the disciplinary and pedagogic techniques of the teachers of the classes observed. The problem of method (especially with respect to coding of utterances for statistical analysis) are discussed throughout. Findings show that in terms of the indicators for both regulative and instructional contexts, the observed math and science curriculums appeared to be predicated on a restricted rather than an elaborated code for both classes of students. This conclusion suggests that Bernstein's emphasis on certain pupils lacking an elaborate code in accounting for working class failure and middle class success, is misplaced. Further empirical study, especially in the arts curriculum, is suggested. (Author/MHP)

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Bernstein's Codes: A Classroom Study

Barry Cooper

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BERNSTEIN'S CODES: A CLASSROOM STUDY

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PREFACE

This paper is concerned to examine empirically one particular element of Basil Bernstein's socio-linguistic account of educational failure. Bernstein claims, in several places, that, in the terms of his socio-linguistic codes thesis, the school as an institution is predicated on "elaborated" codes. This paper, after briefly discussing the relevant aspects of Bernstein's theoretical writings, will report and discuss (in relation to indicators of codes derived from Bernstein's socio-linguistic papers) the results of a piece of intensive classroom observation research which was oriented particularly to the issue of which of Bernstein's two codes - the restricted or the elaborated - appeared to underlie the disciplinary and pedagogic techniques of the teachers of maths and science observed. There is considerable discussion throughout the paper of the problems of method (especially with respect to the coding of utterances for statistical analysis) which were found to be involved in the attempt to operationalize Bernstein's concept of "code".

Acknowledgements

As far as I am aware, it was Harold Rosen who first called for research of the kind reported in this paper. In a critique of Bernstein, he wrote (Rosen, 1972):

> "A final point on educability. We are informed repeatedly by Bernstein that 'schools are predicated upon the elaborated code'. No attempt is made, in fact, to examine how language is really used in schools most of the time ... There are many things one would want to say about the way in which language is used and unused in schools, but one thing is certain - Bernstein's alluring descriptions of the elaborated code do not fit it".

I have tried to substantiate Rosen's view.

An earlier version of this paper was accepted, in 1975, by the University of Sussex as the dissertation for the degree of M.A. in Sociological Studies. I should particularly like to thank my supervisor, Colin Lacey, for the help he gave me while I was actually carrying out and writing up the research. I should also like to thank Douglas Barnes and Carolyn Miller for their helpful comments on an earlier draft of this paper.

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Section I

The Aim of the Research

This paper will be primarily concerned with one particular aspect of Basil Bernstein's well-known socio-linguistic account of working class educational failure. The structure of this account, presented by Bernstein in a series of papers, is fairly straightforward (Bernstein, 1973). It is postulated that there exist two qualitatively different modes of language use which are seen as realizations, respectively, of underlying 'restricted' and 'elaborated' communication codes. He describes 'code' as referring "to the principle which regulates the selection and organization of speech events" (Bernstein, 1971a). The restricted code, furthermore, is seen as giving access to only 'particularistic' meanings while the elaborated code gives access also to 'universalistic' meanings. These terms are defined as follows (Bernstein, 1973a):

> "Universalistic meanings are those in which principles and operations are made linguistically explicit, whereas particularistic orders of meaning are meanings in which principles and operations are relatively linguistically implicit".

He also states that speech realizing a restricted code will be relatively more context-bound than speech realizing an elaborated code. This, put slightly differently, means that the restricted code speaker will tend to take more knowledge on the part of the listener for granted; whereas, with the elaborated code speaker, "the condition of the listener ... will not be taken-for-granted" (Bernstein, 1965). Other postulated features and correlates of these two codes will be described later where relevant to the developing argument.

Not all individuals are seen as having access to both codes. The critical determining factor is the type of socialization (form of social relationship) experienced by an individual in his family of origin. Particularly important, in Bernstein's theory, are the ways parents control and instruct their children, through speech, as they develop. All individuals are seen as having access to a restricted code because the form of social relationship this assumes - one "based upon a common, extensive set of closely-shared identifications and expectations self-consciously held by the members" (Bernstein, 1965) - is seen as universal. Furthermore, individuals from 'positional'[1] families are seen as being limited to just this code. Only individuals from 'person-oriented'[2] families are seen as having access, in a range of contexts, to an elaborated as well as a restricted code. These family types,[3] and hence the codes, are seen as distributed unevenly through the class structure of our society. Specifically, the elaborated code is seen as, on average, a middle class possession and it is certain sections of the working class[4] which are seen as being limited to a restricted code.

The final postulate, for which Bernstein presents no empirical evidence, and the one with which this piece of work will be centrally concerned, is that the school as an institution is based on elaborated codes. Bernstein (1973a) states:

> " ... the schools are predicated upon elaborated code and its system of social relationships".

And (1969):

> " ... The school is necessarily concerned with the transmission and development of universalistic orders of meaning. The school is concerned with the making explicit and elaborating through language, principles and operations, as these apply to objects (science subjects) and persons (arts subjects)".

Bernstein argues that it is because working class children, on average, have only a restricted code, while the school demands an elaborated code, that they are observed

to fail in comparison with middle class children. He writes (1965):

> "If a child is to succeed as he progresses through school it becomes critical for him to possess, or at least be oriented towards, an elaborated code".

Most recently he has written (1975a):

> "... working class children, especially lower working class children relative to middle class children, are crucially disadvantaged, given the way class relationships affect both the family and the school ... , ... the code which facilitates the systematic examination of, and change in, the boundaries of experience, is not initially made available to the children as an essential part of their socialization in the family".[5]

This present piece of work will attempt to cast some doubt on the validity of this view of the school, which is considered here to be unrealistic[6]. It will attempt to show, using observational data from a comprehensive school, that it is just as likely that our schools are predicated, to use Bernstein's term, on restricted codes as on elaborated ones. It will be suggested that this casts considerable doubt on the validity of his account of working class failure and middle class success which, as was shown above, assumes the school to be predicated on an elaborated code and hence to demand such a code of the children in it.

The Research Method

The method adopted involves an implicit acceptance, for present purposes, of Bernstein's ideal-typical models of communication codes exactly as they are described in his writings.[7] This is because it is the one particular postulate relating schools and codes that is of central interest here. Bernstein's papers are predominantly concerned with code realization in the family setting. Nevertheless, it is clear that a number of empirically observable indicators of elaborated and restricted codes can be drawn out that are relevant to the classroom context. These indicators are used as the basis for data analysis. The analysis is presented in terms of Bernstein's (1973a) concepts of 'regulative' and 'instructional' contexts. These seemed particularly relevant to the classroom and are defined as follows:

> "The regulative context - these are authority relationships where the child is made aware of the rules of the moral order and their various backings".

> "The instructional context, where the child learns about the objective nature of objects and persons, and acquires skills of various kinds".

The next problem was to select a method of collecting data on the presence or absence of the chosen indicators in particular classroom settings. A decision was taken against the use of questionnaires, because observation methods seemed more appropriate to the issues being explored. Data was collected in three ways. These were:

1. by classroom observation,
2. in informal discussion with teachers,
3. by examining school records and reports.

The Research Setting

The classes observed formed part of a large (12 form entry), twelve to eighteen, mixed comprehensive school. The school, being situated in a new town in the south of England, was of fairly recent origin. Children entered it from a number of middle schools. The two classes observed formed part of the first year. There existed a

system of 'banding by ability' in this year which is shown diagrammatically below:

1AP, 1AQ, 1AR, 1AX, 1BL, 1BM, 1BN, 1BP, 1BQ, 1BR, 1CQ, 1CR.

1AP, 1AQ and 1AR comprised the top band proper. 1AX were described as borderline top band. The six classes from 1BL to 1BR formed the second band. 1CQ and 1CR were the two remedial classes. Teachers generally described top band pupils as 'As' and second band pupils as 'Bs'.

The children were banded initially on the basis of 'ability' and attainment scores from their middle schools. Officially, the classes within any band were of equal average 'ability'. The top band was described to me by the deputy-head as "the grammar school band, if you like".

At my request the deputy-head chose two classes, one from each of the first two bands proper, for me to observe during their maths and science lessons. The choice was, to a large extent, dictated by timetabling constraints.

The Two Classes

The two classes observed were 1AQ and 1BQ. A brief description of each will now be given - based on the school record card kept, to varying degrees, for each child.

1AQ consisted of 16 boys and 16 girls. At the time of study (May/June) they had an average age of 13 years 3 months. From their middle school records it was calculated (n = 25) that their average I.Q. was 119.

1BQ consisted of 13 boys and 18 girls. They had an average age of 13 years 2 months. Their average I.Q. was 103 (n = 24).

Although I was refused permission to ask children about their fathers' occupations I was allowed to record such information from the school records. This information was far from complete but, nevertheless, the table below suggests the existence of a distinct difference between the two classes with respect to social class[8]:

	Social Class							
	I	II	IIIn	IIIm	IV	V		Total
1AQ	3	9	1	5	1	0	=	19
1BQ	0	2	1	5	2	1	=	11

1AQ children appear, assuming the 19 cases to be representative, to be from a predominantly non-manual background. 1BQ children, especially on the assumption that any under-reporting of occupations to the school is most likely to occur lower down the social scale, appear to be predominantly from manual backgrounds. The difference was significant at the 5% level[9].

The Lessons Observed

I wished to follow the development, by teachers, of particular topics from lesson to lesson. It was not feasible, given the time available and timetabling constraints, to adequately observe two classes in all their academic subjects. I decided, therefore, to restrict observation to the maths and science subjects. These form a substantial proportion of the 'academic' timetable. Their concern with general principles and laws also makes them particularly relevant to Bernstein's theorizing. The maths and science lessons of the two forms were to be observed for 4½ weeks.

59 out of a possible 89 periods were actually observed.[10] The composition of the sample of observed lessons is given below in terms of periods. Each maths lesson consisted of one period of approximately 40 minutes and each science lesson of two:

1AQ			1BQ		
Teacher	Subject	Periods Observed	Teacher	Subject	Periods Observed
Mr. A	Maths	10	Mrs. E	Maths	8
Mrs. B	Chemistry	8	Mr. F	Maths	7
Mr. C	Physics	8	Mrs. B	Physics	6
Mrs. D	Biology	2	Mr. G.	Chemistry	4
			Mr. H	Biology	6
	Total	28		Total	31

The form-teachers of 1AQ and 1BQ were, respectively, Mrs. B and Mr. G. The latter was a probationary teacher.

The Following Sections

Sections IIA and IIB will be concerned with code realization within the regulative contexts, and Section III within the instructional contexts, of the observed lessons. Section IV will attempt to discuss, in relation to Bernstein's codes, the way pupils were viewed by teachers.

Notes to Section I

1. "If the area of decision-making is invested in the member's formal status, this type of family will be called positional". (Bernstein, 1971a).

2. "By contrast we could consider a family type where the range of decisions, modifications and judgements was a function of the psychological qualities of the person rather than a function of the formal status". (Bernstein, 1971a).

   Such a family he terms person-oriented.

3. For example:

   "The literature strongly suggests that the traditional working class family is of the positional type". (Bernstein, 1971a).

   Person-oriented families are seen as mainly characteristic of certain sections of the middle class and, possibly, the geographically mobile and 'affluent' sections of the working class. Bernstein does state that these family types cross-cut social class to some extent. For a detailed discussion of the relation of these types to social class as Bernstein sees it the reader is referred to Bernstein (1973), pp 185 - 189.

4. It must be noted that Bernstein has, allegedly, become less willing to make

statements relating codes and class. In 1965 he wrote:

"It is considered that the normative systems associated with the middle class and associated strata are likely to give rise to the modes of an elaborated code whilst those associated with some sections of the working class are likely to create individuals limited to a restricted code". (Bernstein, 1965).

In 1971:

"Thus we can expect, broadly speaking, to find both modes of an elaborated code within the middle class together with restricted codes. In the lower working class we could expect to find a high proportion of families limited to a restricted code. We might further expect that upwardly mobile working class children would move towards the object rather than the person mode of the elaborated code". (Bernstein, 1971a).

In 1973:

"I have indicated that access to the roles and thus to the codes is broadly related to social class". (Bernstein, 1973a).

He has come to argue that the working class may have access to an elaborated code in certain limited contexts. He has also distinguished 'code' from 'variant' by using the notion of context. These revisions do not affect the argument of this paper. Furthermore, in a paper published in 1975, on class and pedagogies, he is still associating codes and class fairly explicitly (Bernstein, 1975b).

For example, when discussing "invisible" pedagogy:

"... because it originates within the middle class, it presupposes a communication code (an elaborated code) which orients the child early towards the significance of relatively context independent meanings ...."

It will be noted that the postulated relation between class and code is a central premise of his account of educational failure.

5. The code referred to is the elaborated type.

6. In another series of papers (Bernstein, 1975), not concerned centrally with speech, Bernstein has presented a view of the present condition of our schools (arguably a more realistic one) which appears to contradict the view presented in his socio-linguistic papers. The school, in these non-linguistic papers, appears, in many ways, to be predicated on restricted codes. Here, however, the concern is specifically with the view he presents in accounting for educational failure in his socio-linguistic papers.

7. In a previous paper I have developed a mainly theoretical critique of Bernstein's socio-linguistic theory and his use of it to explain educational failure (Cooper, 1975). For the purposes of this piece of research any doubts about the usefulness of the notion of codes per se will be put to one side.

8. The recorded occupations were coded using the Registrar General's (1970) classification of occupations by social class.

9. The data were retabulated to yield a 2x2 table showing the distribution of the available cases across the manual/non-manual division in relation to membership of 1AQ/1BQ. A chi-squared test was then carried out:

	Manual	Non-Manual	
1AQ	13	6	df = 1; X^2 = 4.75
1BQ	3	8	Significant: p less than 0.05

10. The reasons, in approximate order of importance, why 30 of the 89 periods were not observed were:

(i) Teacher absence - I had permission to observe only eight particular teachers.
(ii) Some lessons were taken by students.
(iii) Various school trips and special lectures occurred which involved the cancellation of timetabled lessons.
(iv) The teachers occasionally requested not to be observed. I always agreed immediately
(v) I was occasionally absent because of other commitments.

Section II

Section II, which is in two parts, comprises a discussion of the regulative speech observed during the research. The first section, IIA, is a statistical analysis of the speech; and the second, IIB, consists of a discussion of some of the examples on which the statistical analysis is based.

The utterances to be analysed below were collected from the last 36 of the 59 periods observed.[1] The sample of regulative utterances was compiled on the basis of recording, by hand, all teacher-talk relating to rule-breaking, disobedience or misbehaviour by pupils in these 36 periods. Clearly, to some extent, the pupils' behaviour was recognized as falling under these headings by the researcher on the basis of the teachers' response to it. This sample of teacher-talk will be coded in an attempt to use it as one empirical indicator of the communication code being realized in the context of these classrooms.

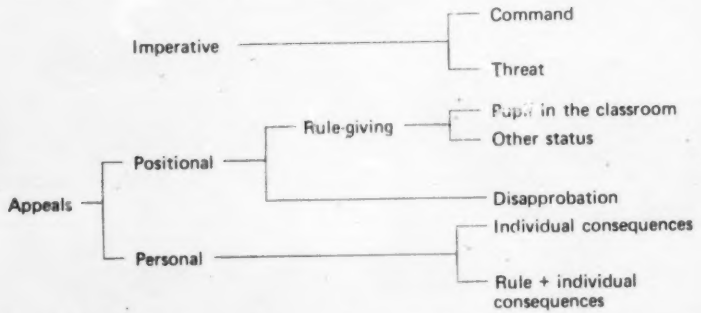
Section IIA

The Coding System

It was decided to use a coding system based fairly closely on those used by Bernstein and his co-workers in their analysis of the control utterances of mothers - collected by questionnaires. The basis of the system used here is Turner's (1973) coding frame which is, in turn, derived from the social control coding manual of Bernstein and Cook (1965). It was decided to use a system closely modelled on these for the following reasons:

(i) It would enable the researcher to see to what extent such a system could be applied to the study of speech in a naturalistic setting.
(ii) Following on from the last point, it would enable the specification of any necessary modifications in methodology arising from difficulties in coding; and
(iii) It would facilitate the use of the results of the analysis to throw light on the nature of the code underlying the speech.

The final[2] coding system is shown diagrammatically below:



The seven final categories (far right) owe their existence to several distinctions drawn in Bernstein's work between different modes of social control in the family's regulative context. The three types of control he describes are imperative, positional and personal. The latter two, taken together, constitute what he calls appeals. He states that "underlying these distinctions in modes of control is the role discretion

(the range of alternatives) accorded" to those regulated (Bernstein, 1971a). Imperative control[3] accords the regulated the least role discretion. Its distinguishing feature is that the child is only allowed the "external possibilities of rebellion, withdrawal or acceptance" (Bernstein, 1971a). Examples of imperative control utterances are "Stop talking!" and "Go and empty your mouth."[4] It will be noted that in the diagram the imperative category is further divided into commands and threats. These terms have their dictionary meanings but it must be noted that, for an utterance to be coded as an imperative/threat, it must be clear that any negative sanctions mentioned will follow the disobeying of an imperative/command. An example would be "Put your pen down! If I see anyone else you'll have to stay in". This has the required form - being an imperative command followed by a threat.

Appeals allow the regulated more role discretion than imperative control, but their main distinguishing feature is that, in using them, the controller (parent/teacher) draws the attention of the controlled (child/pupil) to social rules in some way or another. According to Bernstein (1971a), there are two primary types of appeal: positional and personal. Positional appeals "refer the behaviour of the regulated (child) to the norms which inhere in a particular or universal status". With personal appeals "the focus is upon the child as an individual rather than upon his formal status". Now, following Turner (1973) I have sub-divided the positional type into rule-giving and disapprobation. The essence of rule-giving is the simple announcement to the child or pupil, without further verbal elaboration, of a rule-to-be-followed. For example, "Girls are not allowed to wear school ties". The further sub-division, again based on a similar distinction of Turner's, separates rules that are clearly specific to the "pupil-in-the-classroom" context from more general (school) rules. For example, a pupil-in-the-classroom rule might be "You must put your hand up if you wish to answer a question".[5] The utterance relating to girls and ties will serve as an example of a (slightly) more general rule. It will be noted that both examples relate, as is required by Bernstein's theory, to the status of the regulated - it is pupils who must put up their hands and girls who must not wear school ties.

The other sub-division, disapprobation, is borrowed directly from Turner. This category, which includes such utterances as "It's taken you long enough" (spoken in a particular way in a particular context), is classified under positional for several reasons. One reason is that to do so is in line with my aim of following Bernstein and his co-workers' practices where possible, but several theoretical reasons can also be adduced. The first is that such statements clearly allow the regulated rather more role discretion than imperative commands. The child chastised above could conceivably start a discussion on why he had taken so long in a way that he could not have had the teacher said firmly "Get it finished!"[6] This suggests that disapprobation should come under the general heading "appeals" rather than "imperatives". However, having said this, there are certain features of such utterances that suggest positional rather than personal control. The main one is that such examples of disapprobation as "I don't find you funny Debbie" clearly rely on the formal authority (or power) of the teacher to produce their desired effects. And Bernstein (1971a) says that, with positional control, "... boundary areas instead of generating discussion and accommodation might well become border disputes settled by the relative power inhering in the respective statuses". It is on this basis - the reliance of disapprobation on status (or power) for its effects - that it is coded here as positional.

This leaves only the personal category to be discussed. There were so few examples of personal control amongst the 149 utterances coded that the two sub-divisions of personal have been chosen merely on the pragmatic basis that they exhaustively cover all the examples found. They are derived from a series given in Cook-Gumperz (1973). The first sub-division, 'individual consequences', covers utterances that draw the attention of the child to the consequences (usually perceived as negative by the teacher) of his behaviour for himself. An example was "The more you do now, the less you do tonight at home". (The main difference between this and threats is that, with the latter, the negative consequences are teacher-imposed whilst, with 'individual consequences', they are more clearly self-imposed.) The second

sub-division, "rule + individual consequences", covers statements where a rule is given together with an explanation in terms of individual consequences. For example, "Now, I don't want to see anyone talking - to make sure you all have a good chance of doing the graph." Other types of personal utterance (Cook-Gumperz lists 17), since none were found, will not be discussed here.

The Context-Bound Use of the Coding System

In practice, the coding system was operated in terms of the situational function[7] of each utterance, rather than at the syntactic level. That is, each utterance was coded by assessing its meaning in context. Some examples will be given below in illustration.

"Stop talking!" was quoted above as a typical imperative command. However, given that the coding system was operated semantically, we have examples of imperative utterances that are both syntactically simpler and more complex than this. A syntactically more complex example is "There's a bit of nattering". This declarative sentence was coded as an imperative on the basis of the researcher's knowledge of the context of its utterance. The class was noisy until the teacher spoke it (with a marked intonation) and then quietened down. Since there was no obvious need for a descriptive sentence to be spoken at that particular time, it seems reasonable to assume that the pupils perceived the sentence as a command to be quiet. At the other extreme of grammatical simplicity, two cases of the teacher clapping hands to achieve order have been coded as imperative commands - again on the basis of inference from my situational knowledge (in the form of field notes). The pupils became quiet, the teacher appeared to be seeking quiet; hence the coding decision.

Since such decisions are not 'obvious' some further consideration of them is necessary. Such difficulties as were experienced in coding the teacher-talk were a product, to a large extent, of the application of a coding frame originally intended for use with questionnaire responses[8], which tend to be relatively explicit, to utterances spoken in their natural context. It was on the basis of context that "There's a bit of nattering" was coded as a command. There is, however, an obvious difference between this remark and one like "Stop talking!" The latter explicitly states the change in behaviour required on the part of the pupil(s). The former does not but instead relies on the pupils to 'fill in' in order to infer what is required of them. The command to be quiet is implicit. (This, as will be shown later, is an indicator of a restricted code.) In any subsequent research, such a difference would have to be respected in the re-design of the coding frame. The important point here is to consider the possibility that, since what is taken-for-granted by "There's a bit of nattering" is pupil knowledge of a rule that 'pupils should not be too noisy', this remark should, in fact, have been coded as a positional appeal. Now, since it does not involve the explicit, or even implicit, giving of a rule, it could only sensibly be accommodated in the disapprobation category. Certainly, given that the pupils are aware of a rule about noise levels, it could serve the function of expressing disapproval. This problem of whether the remark is a command or an example of disapprobation arises partly from the fact that, in their natural context, utterances can serve several functions simultaneously. This particular remark seems to express both disapproval and a teacher desire for quiet. To this extent my coding of it as an imperative command is somewhat arbitrary. The issue, in using this Bernstein-derived frame, is to decide, for any particular utterance, whether it is primarily imperative or disapproving. If, as an example, we consider "Nicola!" shouted by the teacher because Nicola is messing about, then, although this remark does express disapproval, its main function is clearly (and this is shown by its effects on Nicola in context) to instruct Nicola to stop messing about. It is on this sort of basis that such remarks have been coded as imperatives.

In order that the reader may judge the effects of such coding decisions on the

later tables of results a breakdown of all the utterances coded as imperative commands will be given below. The categories are as follows' 'Explicit' refers to all straightforwardly imperative utterances such as "Stop talking!" which contain, in themselves, instructions for pupils to follow. All the other four categories encompass 'implicit' imperatives. The first, 'naming', contains all the utterances of the "Nicola" variety. The second, 'surprise', contains all those instances where a teacher (usually Mr. F. who did not know names) used such pseudo-linguistic devices as clapping hands, shouting "Hey!", etc. to command pupils. The third, 'thank you', contains all those cases of teachers using such remarks as "Thank you" (spoken with a particular intonation) to achieve order. The only entry here that is markedly different from the category heading itself is one "That'll do!" The last category contains all utterances of the "There's a bit of nattering" type - descriptive sentences syntactically which, although I have coded them as commands, clearly have a large element of disapprobation as part of their function. The breakdown of the 118 commands is as follows:

Explicit		90
Implicit	Naming	17
	Surprise	4
	Thank you type	4
	There's a bit of nattering type	3
	Total	118

The researcher's own opinion is that only the very last category (with three entries) might reasonably be shifted to 'disapprobation' - a coding change which, it will be seen from the tables of results below, will not affect the conclusion of this analysis in anything but a very minor way. Utterances in the other three 'implicit' categories are considered to clearly have as their main component an imperative function[9].

It must be pointed out that similar contextual decisions[10] have been made in coding some utterances as appeals. For example, "Hands up!" which, as stated, appears to be an imperative command, has in fact, in several places, given the researcher's knowledge of context, been coded as a rule-giving utterance. It was often observed to follow pupils' 'shouting out' when the teacher asked the class a question to which they thought they knew the answer. In this context it served to remind the pupils of a rule; roughly, "if you wish to offer an answer to a teacher's question then you must put up your hand and wait to be nominated by the teacher concerned". It is because so many rule-giving statements are repetitions or reminders that they can be syntactically simple - relying on pupils to fill in the details. They are, nevertheless, functionally, examples of rule-giving positional appeals.

The Results

The results are presented below in tabular form. In Tables One and Two the number of control utterances in each of the seven categories forming the coding system is given for each observed teacher. The first table deals with the teachers of 1AQ and the second with those of 1BQ.

Table One: Control Utterances: 1AQ

	Teacher: Mr A	Mrs B	Mr C	Mrs D	=	Total	(and %)
Command:	9	4	27	2	=	42	(84%)
Threat:	0	0	1	0	=	1	(2%)
Pupil-in the-classroom rule-giving:	2	1	0	1	=	4	(8%)
Other status rule-giving:	1	0	0	0	=	1	(2%)
Disapprobation:	0	0	0	1	=	1	(2%)
Individual consequences:	0	0	1	0	=	1	(2%)
Rule + individual consequences:	0	0	0	0	=	0	(0%)
				Total:		50	(100%)

Table Two: Control Utterances: 1BQ

	Teacher: Mrs B	Mrs E	Mr F	Mr G	Mr H		Total	(and %)
Command:	3	23	16	23	11	=	76	(77%)
Threat:	0	0	1	2	1	=	4	(4%)
Pupil-in-the-classroom rule-giving:	1	6	1	0	2	=	10	(10%)
Other status rule-giving:	0	1	0	0	0	=	1	(1%)
Disapprobation:	0	1	1	0	2	=	4	(4%)
Individual consequences:	0	0	1	1	0	=	2	(2%)
Rule + individual consequences:	0	1	0	0	1	=	2	(2%)
				Total			99	(100%)

In Table Three, the total number of utterances of each type observed in these 36 periods is given. In Table Four the same data is given, for each class separately and then the two taken together, in terms of the three main control types.

Table Three: Control Utterances: 1AQ and 1BQ Combined

	Total Number Recorded:	
Command:	118	(79%)
Threat:	5	(3%)
Pupil-in-the-classroom rule-giving:	14	(9%)
Other status rule-giving	2	(1%)
Disapprobation:	5	(3%)
Individual consequences	3	(2%)
Rule + individual consequences	2	(1%)
Total	149	

Table Four: Control Utterances by Form

	Form:		
	1AQ	1BQ	Total
Imperative:	43 (86%)	80 (81%)	123 (83%)
Positional:	6 (12%)	15 (15%)	21 (14%)
Personal:	1 (2%)	4 (4%)	5 (3%)

In Table Five, three figures are given for each teacher. The first is the number of periods of his teaching in which all control utterances were recorded. It will be noted that Mrs. B. appears twice - once as a teacher of chemistry to 1AQ and once as a teacher of physics to 1BQ. The second figure is the total number of control utterances, of all types, counted in these periods. The last figure, obtained by dividing the first into the second, gives the number of control utterances per period for each teacher observed.

For Table Six the same calculations have been carried out, but for the periods of each class taken as a whole.

Table Five: Total Control Utterances per Period by Teacher

Teacher:	Number of Periods for which Utterances were coded:	Total Control Utterances Coded:	Hence: Number of Utterances per Period
Mr A	8	12	1.50
Mrs B (1AQ)	4	5	1.25
Mrs B (1BQ)	2	4	2.00
Mr C	4	29	7.25
Mrs D	2	4	2.00
Mrs E	6	32	5.33
Mr F	4	20	5.00
Mr G	2	26	13.00
Mr H	4	17	4.25

Table Six: Total Control Utterances per Period by Form

Form:	Number of Periods for which Utterances were Coded:	Total Control Utterances Coded:	Hence: Number of Utterances per Period
1AQ	18	50	2.78
1BQ	18	99	5.50
Total:	36	149	4.14

Discussion of the Results

The only significant differences between the control utterances of the teachers of the two classes is a quantitative one[11]. This can be inferred from Tables 4 and 6. It can be seen, from the last column of Table 6, that there were almost exactly twice as many control utterances per period in 1B Q's lessons than in 1AQ's.[12] Having noted this, it is clear that the eight observed teachers relied primarily, in the classroom, on the command sub-division of the imperative form of control. This can be seen from Tables 1 to 3. The command category contains 79% of the total control utterances. The only other category to receive a substantial proportion of entries (9%) is the pupil-in-the-classroom rule-giving sub-division of positional control.

What is the nature of the underlying 'code' suggested by these results? It is important to note that Bernstein does not argue that there exists a one-to-one relationship between the type of control exercised[13] and the type of linguistic code realizing it - except for the case of imperative control which he sees as realized by a restricted code. He argues (1971a):

"It is clear that in any one family, or even in any one context of control,

all these modes may be used .... We can however distinguish between families .... in their preferred modes of control .... We can summarize the consequences for learning which inhere in the three modes as follows:

Mode	Learning	Level of Learning
Imperative	Hierarchy	Restricted Code
Positional	Role Obligation and Differentiation	(Restricted Code (Elaborated Code
Personal	Inter-personal Intra-personal	(Restricted Code (Elaborated Code".

He further states (1973c) that, in families:

> "(1) The communications could focus upon either positional or personal attributes of a family member ....
> (2) The realization of these attributes could be regulated by either restricted or elaborated codes".[14]

With respect to our results we can see that the large percentage of imperative control utterances (83% of the total) implies, according to the diagram from Bernstein just given, that the underlying code is a restricted one. This conclusion would be strengthened, however, if we could also show that the code realizing the positional control utterances (14% of the total) is also a restricted one. There are several reasons for believing this to be the case. First of all the fact is that the large percentage of imperative utterances do point to an underlying restricted code and it is difficult to see how an elaborated code could exist in parallel with this. Secondly one can draw on the criteria of both Cook-Gumperz (1973) and Bernstein (1973a) for determining the code realization of positional control. Cook-Gumperz writes:

> "Where the control is positional and the code elaborated, the parents are less likely to draw upon imperative control and the moral backing of the rules is likely to be verbally elaborated .... Where control is positional and the code restricted the parents are more likely to rely upon imperative controls and rule announcing".

She seems to have drawn these criteria from Bernstein's own remarks that:

> "It is likely that where the code is restricted, the speech in the regulative context may well be limited to command and simple rule-announcing statements".

Whereas with code elaboration we should expect:

> "(1) Some developed grounds for the rule, (2) some qualification of it in the light of the particular issue" and that "the socialized would be given opportunities to question".

In fact, the teachers observed relied almost totally on commands and rule-announcing statements. The imperative command and positional rule-giving categories comprise 89% of all the control utterances. It therefore seems safe to infer that, in terms of Cook-Gumperz and Bernstein's quoted criteria, the realizing code in these classrooms is most likely a restricted one for the positional as well as for the imperative form of control. Further evidence for this conclusion is available below, in Section IIB, where it is shown that the pupil was not expected to question the teachers' authority in these classrooms. The question of whether the personal control utterances observed were realized by an elaborated or a restricted code will be left aside simply because of the small numbers involved.

It can be concluded that, as far as the regulative context of the classrooms observed is concerned, the results of the coding suggest an underlying restricted linguistic code.

Section IIB

In the last section, the sample of social control utterances from the last 36 periods observed was subjected to a simple statistical analysis. It was concluded that control in these classrooms was predominantly imperative and positional and realized through a restricted code. This involved the use of a coding operation which functioned as a mapping from the sample of utterances to the set of seven control categories. This mapping could only be successfully accomplished because the researcher had access to the context[15] of each utterance. This section will consist of a discussion of specific instances of control (drawn from all 59 periods observed) in their contexts. The method followed will be to analyse each example in terms derived from Bernstein's writings on codes. The aim will be to give further support to the conclusion reached in the last section.

The first empirical indicator to be considered is the nature of the role relationships in the regulative contexts of these classrooms. Bernstein states that "changes in code involve changes in role relationships and social control" (Bernstein, 1971a). This presumably means that a specification of the 'role system' observed will cast considerable light on any conclusion reached about underlying code. Bernstein describes two opposed role systems: open and closed (1971a). The former he associates with an elaborated code, the latter with a restricted code. I quote:

> "We could call a role system that reduced the range of alternatives for the realization of verbal meanings a closed type .... The greater the reduction in the range of alternatives, the more communal or collective the verbal meanings and the lower the order of complexity and more rigid the syntactic and vocabulary selections - thus the more restricted the code".

Bernstein also makes available a sociological method[16] of deciding whether the classrooms observed exhibited open or closed systems. He argues (1971a):

> "It is possible to evaluate family role systems by reference to the principles which for any one family control the allocation of decision-making".

More specifically, he says of closed systems:

> "If the area of decision-making is invested in the member's formal status, this type of family will be called positional". (see note 13 above here)

There would be, in this type, "clear separation of roles" and "formally defined areas of decision-making and judgements accorded to members of the family in terms of their formal status". With person-oriented families, however, which correspond to open role systems, "the range of decisions, modifications and judgements" would be "a function of the psychological qualities of a person rather than a function of the formal status".

The classrooms observed exhibited, in these terms, closed role systems and positional decision making. The teacher, by virtue of his formal authority, had rights with respect to decision-making which the pupil was expected to recognize. An example will illustrate this. Susan, of 1AQ, had left the classroom without first consulting her chemistry teacher. When she returned the following exchange occurred:

Mrs B Come here! Where have you been?
Susan: To the toilet.
Mrs B: Do you always go in and out of lessons when you please?
(Susan fidgets. She looks worried. She does not answer)
Mrs B: I'll see you at the end.

At the end of the lesson, after the rest of the class had left, Mrs B faced Susan and said, firmly, "It had better not happen again". It can be seen that the teacher clearly considers that she has the sole right to make decisions as to whether pupils should leave the classroom. The basically imperative nature of her utterances clearly demonstrates this. Susan does not argue - thus perhaps illustrating Bernstein's point that the imperative mode of control drastically reduces the role options available to the controlled. Presumably Susan knew she had broken a rule. The existence of such a rigid rule and the imperative nature of the teacher's utterances, taken together, suggest positional control realized by a restricted code according to the criteria outlined in the previous section (p 14).

A further incident, involving Susan and her maths teacher, illustrates another of Bernstein's statements about positional control. He says that when control is positional disputes will tend to be "settled by the relative power inhering in the respective statuses" (1971a). Here Susan had asked her maths teacher what particular topics would be in their maths examination. The exchange:

Susan: What's in our exam?
Mr A: You can't ask that sort of question.
Susan: Why not?
Mr A: Because I say so.
Susan: Other teachers have told ....
Mr A: That's enough! Be quiet!

Several things can be noted about this. The teacher first responds to Susan's question with a rule - that pupils are not allowed to ask what is in their examination. This positional remark does allow Susan the option of a question. The teacher's response to Susan's "Why not?" clearly shows that social control rests here on relative status or power. The teacher invokes his formal status and its associated authority rights. Susan, however, continues her questioning. She attempts in fact to initiate a discussion on the issue. This forces the teacher into a command - "Be quiet!" This sequence of events illustrates Bernstein's claim that, where control is positional, "if the child rebels he very soon challenges the base of the culture and this may force the controller (parent/teacher) into the imperative mode" (1971a). The presence of such sequences lends strong support to the conclusions reached in Section IIA.

Bernstein has stated that one important feature of speech based on a restricted code is that much remains implicit. The speaker takes much for granted about the listener's state or degree of knowledge. Bernstein says (1965):

> "the most general condition for the emergence of this code is a social relationship based upon a common, extensive set of closely-shared identifications and expectations self-consciously held by the members".

He also argues (1973a) that particularistic meanings "in which principles and operations are relatively linguistically implicit" are characteristic of a restricted code (1973a). Several examples from the data will now be used to show that social interaction through speech in the regulative context of these classrooms did indeed proceed on the basis of a set of shared understandings[17] - particularly of a body of rules specifying appropriate classroom behaviour on the part of pupils - and that this had the effect of reducing the need for relatively explicit speech in this setting.

To begin with, it can be noted that in the above example the chemistry teacher

(Mrs B) did not feel it necessary to specify to Susan just what rule she had broken by leaving the room. Susan already knew - this showed in her uneasiness during the exchange[18]. The teacher actually asked her a question which, out of context, would appear to be merely an information-seeking remark but here served to remind Susan what rule she had broken and, since Susan remained silent in response to it, to reassert the rule's and the teacher's authority. Many other control utterances illustrate the same phenomenon - much remains unsaid. For example, teachers who wanted a class to be quieter used any number of linguistically far-from-explicit remarks to achieve their aim. For example:

"Thank you". (said firmly)
"Hey!" (said loudly from the teacher's desk)
"Nicola!" (said loudly and suddenly)
"Mutter, mutter, mutter". (muttered by the teacher)

None of these remarks explicitly instructed children to be quieter - only the last having any obvious connection with noise - and yet they were all observed to have this effect. This is clearly because the children do possess shared expectations about behaviour in the classroom. They apparently understand[19] that the teacher considers a certain level of noise to be 'too noisy' and, because of this, the teacher has only to draw their attention in some way to the 'excessive' noise level for it to subside (assuming, of course, that the teacher is 'in control'). The pupils presumably understand that if an apparently meaningless remark (to an outsider) like "Thank you" is addressed to them then they must be breaking a rule. They seemed to have little trouble in deciding just which particular rule it was. This is shown by the fact that 'naming' by the teacher (e.g. "Nicola!") caused children at various times to cease looking out of windows, to get up and spit out sweets, and to put away 'illegal' objects such as purses. The teacher in these cases did not have to go on to explain explicitly what was required of the pupils. Such examples clearly point to the control utterances being heavily dependent on shared understanding (especially of rules) and therefore as realizing a restricted code.

It is worthwhile speculating on the social basis of the success of the teachers' non-explicit remarks. Most[20] of these teachers had been teaching these children for the best part of a whole school year in their subjects. This means that the smallest number of periods for which these had taught their respective class was approximately 70. Although I have no data for earlier parts of the school year it might well be the case that, at the beginning of the year, the teachers devoted more time to rule-giving - especially as the children were, at that time, new members of the institution[21]. A stage would then have been reached at which explicit statement of the rules was no longer necessary in order for the teacher to bring the classroom order into line with his requirements - the pupils having learned the rules to an adequate degree. After this it would only be necessary for the teacher to occasionally remind erring pupils of the rules. In the light of these considerations it is not surprising that a large proportion of the teacher control utterances assumed knowledge of the rules on the part of the pupils - and still 'worked'. Bernstein has noted an analogous phenomenon in the family context (1971a):

> "If we think of the communication pattern of married couples of long standing then we see that meaning does not have to be fully explicit; a slight shift of pitch or stress, a small gesture, can carry a complex meaning".

He goes on to say that these relationships are oriented "less towards the verbal but more towards the extra-verbal channel". This is to a certain extent true of the teachers' remarks under consideration here. It will be noted that in the examples quoted above (p 17) I added, in brackets, a brief description of how the utterances were said. A particular intonation (e.g. one signalling displeasure) is presumably a crucial cue to a pupil to consider what rule he is breaking. Such considerations also suggest that a restricted code underlies the utterances for, with this code,

according to Bernstein, "how things are said, ... rather than what is said, becomes important" (1965). Further support for the conclusion that the code is restricted can be gained by noting that "talk of a particular kind" characteristic of an elaborated code - i.e. "judgements, their bases and consequences" (Bernstein, 1971a) - is not at all common in these classrooms. Teachers seldom elaborated on the reasons for rules or commands. It was more common for pupils to attempt to initiate such a discussion - but it was usually quickly curtailed by the teachers (e.g. see Susan and Mr A on examinations above).

One last set of reasons for accepting the conclusions of the last section will be advanced here. These concern the related issues of ritual and boundary maintenance. Bernstein (1966) states that ritual is a form of restricted code. He also argues that underlying the differences in family control types and codes are differences in the strengths of "boundary maintaining procedures". For example, he has described the positional family in these terms (1973a):

> "Where the boundary procedures are strong, the differentiation of members and the authority structure is based upon clear-cut and unambiguous definitions of the status of the members of the family. The boundaries between the statuses are strong, and the social identities of the members very much a function of their age, sex and age-related status".

Transferring these ideas to the regulative context of these classrooms, there are two clear examples of rituals which serve to emphasize the difference in status of teacher and pupil - i.e. to symbolize and maintain boundaries. The first of these is the practice of pupils having to stand at the start of a lesson, or when a teacher enters during a lesson, to 'show respect'. Standing on entry until told to sit was observed in the lessons of six of the eight teachers and standing on the entry of another teacher nearly always occurred during my observation of the two classes. A related ritual occurred at the end of most lessons when the pupils would be made to 'sit quietly' before being allowed to go. This presumably served to symbolize the distribution of rights in decision making. The second ritual practice concerns terms of address. Teachers had the right to call pupils by either Christian name or surname - the former being the norm. Pupils, on the other hand, were compelled to address teachers by means of a title (Mr, Mrs or Miss) plus a surname. This difference on the dimension of intimacy served, like the standing ritual, to emphasize status differences[22].

Several other pieces of evidence point to the existence of strong boundary-maintaining procedures in these classrooms. According to Bernstein "the symbolic ordering of space can give us indications of the relative strength of boundary-maintaining procedures" (1973). It is therefore relevant to note that in all these classrooms (with the exception of science laboratories during sessions of experiments) there was a 'traditional' setting out of space with the teacher's desk in a commanding position at the front and the pupils stretched in rows before him. The teacher also had the sole right to stand while talking (and to initiate speech without prior permission). Such spatial factors arguably helped to determine the direction of communication which was generally from teacher to pupil(s). Bernstein also argues that strong "rules of exclusion"[23] are associated with strong boundary-maintaining procedures. Such strong rules certainly existed in these classrooms. At various times teachers were observed to be very concerned that pupils were breaking them. For example Mr. F and Mrs E spent considerable energy getting pupils to remove their coats - which were not allowed to be worn in class. (The children claimed to be cold). Mrs E insisted several times on the removal of brushes and combs from sight. All the teachers were concerned to spot signs of 'chewing' or of incorrect uniform such as jewelry being worn. All these objects and activities were considered totally inappropriate in the classroom setting.[24]

These several examples of boundary-maintaining procedures and especially the two examples of status-emphasizing rituals clearly suggest the existence in these

classrooms of positional/closed role systems - those associated in Bernstein's theory with a restricted code.

It has been the aim of the discussion in this section to fill out and add further support to the conclusions of the earlier statistical analysis. Sections IIA and IIB taken together can be seen to provide no support for Bernstein's view that the school is predicated on elaborated codes, at least with respect to the regulative context. The next section will examine his ideas in relation to the instructional context.

Notes to Section II

1. It was only in these 36 periods that all control utterances were carefully recorded.

2. Various versions of this system were experimented with until one was derived that enabled any utterance in the sample to be coded just once and that, after coding was completed, had no empty categories.

3. Cook-Gumperz (1973), describing imperative control, writes:

   "If simple constraint is more relevant than the transmission of principles, we have a role relationship with minimum discretion realised through a restricted code, in which an understanding of simple hierarchy replaces an understanding of principles".

4. All examples are, unless otherwise stated, actual utterances from the lessons observed.

5. This is actually a modified version of an utterances to be discussed below - "Hands up". It has been modified here for the sake of clarity.

6. This is an imaginary, not an actual, utterance.

7. As the ethnomethodologists have emphasized, all natural speech is 'indexical' (i.e. dependent on contexts of various kinds for its meaning) to some degree. The term indexical is Bar-Hillel's (1954). For this reason the meaning or function of any utterance may only become 'clear' (i.e. 'clear-for-present-purposes' not 'fully clear') when it is analysed in conjunction with the situational setting in which it was spoken. The examples to be discussed below will illustrate the present sense of 'situational function'.

8. The reasons for adopting such a frame were given earlier.

9. Some contextual evidence for this is available in the discussion of such remarks in Section IIB.

10. Such coding practice is, of course, only as accurate as my understanding of the teachers' and pupils' shared understanding. As Cicourel (1973) has noted:

    "The observer is very likely to draw upon his own past experience as a common-sense actor and scientific researcher to decide the character of the observed action scene".

In this present case the relevant common-sense knowledge is a result of this researcher's previous experience of classrooms gained as both a pupil, and as a teacher in a comprehensive school.

11. A X^2 test was carried out (see table below) and no significant difference was found between the forms with respect to the type of control experienced. The sample will therefore be discussed as a whole.

	Imperative	Positional	Personal	
1AQ	43	6	1	df = 2; X^2 = 0.755
1BQ	80	15	4	Not significant

(The expected values in the 1AQ/Pers. and 1BQ/Pers. cells were very small - 1.68 and 3.32 respectively. It was considered, however, better to run the test on this basis than to collapse the pos. and pers. cells together. Since the chi-square value is so far from a significance level this seems reasonable).

12. This is not relevant to the issue of code determination per se. Although it is an interesting result space does not allow a proper discussion of it here. The large contribution of Mr. G (the only probationary teacher amongst the eight observed) to 1BQ's score is, however, worthy of note.

13. The danger of confusion here arises from the fact that Bernstein uses the terms positional and person-oriented in two ways - to describe family role systems and to describe modes of control. It is the positional family that Bernstein associates with a restricted code and the person-oriented family with an elaborated code. The positional mode of control can be realized through either code. The same applies to the person-oriented (personal) mode of control. It is only the third mode of control (imperative) that Bernstein unambiguously associates with one code - the restricted. This will be expanded on below.

14. My emphasis, not Bernstein's.

15. This fact itself brings Bernstein's context-bound restricted code speech to mind.

16. Sociological, that is, as opposed to purely linguistic.

17. See also the discussion of the teachers' views of the selves of pupils in Section IV.

18. This is, of course, only one possible interpretation of Susan's apparent uneasiness. She might have been anxious because she did not know what rule she had broken. But this is regarded here as unlikely.

19. This is one place in particular where my common-sense knowledge is being heavily relied upon (see note 10 above). As a previous pupil and teacher I 'know' that this is how such remarks work. It is on this basis as well as on the basis of observing the actual effects on pupils of such remarks that such a scheme of interpretation is imputed to the pupils here.

20. Mr H, Mrs D and Mrs B (as a chemistry teacher) had had a considerable number of lessons taken by students during the year.

21. Some rules, of course, are common to all or several stages of the pupils' education. Several such rules will have already been learned in the middle schools.

22. The social psychological and sociological importance of terms of address is made clear by Brown and Gilman (1960).

23. He stated this to be the case during a lecture to teachers I attended - given in Cambridge in the school year 1973/74.

24. In Mary Douglas' terms (1970), they were "polluting".

Section III

This section will consider the pedagogy observed in these lessons in relation to Bernstein's codes. The discussion will concern his 'instructional' context. The main body of the section will comprise an attempt to determine the code predominantly realized in this context in these classrooms. The conclusion reached will then be discussed in relation to Bernstein's (1975b) models of visible and invisible pedagogies. This section will then end with a brief discussion of the effects on some pupils of the pacing of learning in these lessons in relation to Bernstein's (1971b) concept: framing.

The Frame for Determining Code Realization

In examining Bernstein's socio-linguistic papers to ascertain relevant empirical indicators of codes in this context, it became clear that two independent dimensions (other than the purely linguistic[1]) were important. These relate to the form of the social relationship mediating learning and the content of the learning respectively.

Dimension One: Form

The aim here is to describe the respective roles played by the learner in instructional contexts realizing different codes. I shall draw first on Bernstein's (1971a) discussion of closed and open role systems. It will be recalled from the last section that he associates these with restricted and elaborated codes respectively. Of the former (closed) type he writes:

" .... the child steps into the meaning system and leaves it relatively undisturbed".

Whereas, with the open type:

" .... the individual is more likely to achieve meaning on his own terms and here there is the potential of disturbing or changing the pattern of received meanings".

From this we can see that a restricted code is associated with a passive learner (in relation to the received meaning system) and an elaborated code with an active learner. In order to support this reading of Bernstein I want to give a diagram and passage from Bernstein and Henderson (1969). The latter article consists partially of an analysis of questionnaire response data relating to the way mothers in various social classes teach their children skills, and hence is relevant here. The diagram:

"Emphasis on Language in the Domain in Skills:

	Implicit Theory of Learning	Parents' Emphasis on Language	Outcome for Child
Middle Class:	Self-regulating	Relatively low	High autonomy
Working Class:	Didactic	Relatively high	Low autonomy "

The passage:

"In the working class group the concept of learning may well be different, and, therefore, the form the social relationship takes when skills are acquired would be of a different order. The concept of learning here seems to be less one of self-regulating learning in an arranged environment, and more a concept of a didactic theory of learning implying a passive receiver in which a mother has little alternative but to tell or instruct a child. Although the emphasis in the working class group, relative to the middle class, is upon language - presumably upon

> telling or instructing - the child is much less likely to receive explanations of principles. Thus it may be that the working class child learns skills in terms only of an understanding of the operations they entail, whereas the middle class child learns both the operations and principles".

I am not concerned here to criticize the quality of the data and the associated theorizing in this paper. I merely wish to draw out the associations implied between particular learner-roles and codes. Since Bernstein was writing on the assumption that, on average, the working class sample had access to only a restricted code while the middle class had access to an elaborated code as well, it is possible to see in this passage more evidence that Bernstein associates a passive learner with an instructional context realizing a restricted code and an active, or self-regulating, learner with one realizing an elaborated code. This parallels the dimension extracted from the examination of his writings on role systems and codes. On these bases the first dimension for this analysis of pedagogy, relating to the role relationships mediating learning, will be one describing the role autonomy (in relation to what is learned) of the learner. It will be labelled passive/active. It is clearly associated with the implicit theories of learning: didactic/self-regulating. On the basis of whether the pedagogy observed in these lessons renders the learner predominantly passive or active it will be considered to be based on an underlying restricted or elaborated code respectively.

Dimension Two: Content

The second dimension concerns what is learned, or rather more strictly, what is made available to be learned. Bernstein has distinguished two orders of meaning: particularistic and universalistic. The former, in his theory, is intimately associated with a restricted code, the latter with an elaborated code[2]. He defines these orders thus:

> "Universalistic meanings are those in which principles and operations are made linguistically explicit, whereas particularistic orders of meaning are meanings in which principles and operations are relatively linguistically implicit" (Bernstein, 1973a).

This dichotomy, particularistic/universalistic, is the second dimension I wish to use in looking at the pedagogy observed. It is, however, not easy to work empirically with the definitions given above. I want, therefore, on the basis of Bernstein's (1973a) remark that "if orders of meaning are universalistic, then the meanings are less tied to a given context" to replace this dimension with the parallel one: context-tied operations and meanings/context-free operations and meanings. Any evidence that the operations and meanings generally emphasized in these lessons were relatively context-specific will be considered evidence for a restricted code, and vice versa, any evidence of an emphasis on relatively context-free meanings will be taken as evidence of an elaborated code. Evidence of rules and tricks being taught for the purpose of examination-passing, without any explanation of why they work, will be considered particularly compelling evidence for the presence of a restricted code - given Bernstein's frequent remarks about the bases of principles and judgements being made explicit with an elaborated code.

It is not possible, because of the short period of time spent in the school and the basically exploratory nature of the research, to present a statistical analysis of the observed pedagogy in terms of 'form' and 'content'. The method of presentation will therefore be one of 'apt illustration' - relying on the researcher's ability and wish to select representative examples for presentation to the reader. Because there appeared, on examination of my field notes, to be no qualitative differences between the two classes in terms of 'form' and 'content', 1AQ and 1BQ will be considered together in the following discussion. The pedagogies of the maths and science teachers will be treated separately. This is because, in terms of the official curriculum followed in each - Schools Mathematics Project in maths and Nuffield in science, we might expect a more active learner role to result from the scientists'

pedagogy. It is not felt that there were sufficient differences between maths teachers or between science teachers (neither is there sufficient data) to justify the consideration of pedagogy by individual teacher. Both dimensions will be considered in relation to the maths lessons, and then in relation to the science lessons.

Maths: Form

Twenty-five of the observed lessons were in maths. The lessons of all three of the teachers observed in the subject can be characterised by describing the role of the learner as passive, and the implicit theory of learning as didactic. The learner was expected to assimilate certain factual and procedural material, and later to demonstrate his achievement by 'doing examples'. The structure of the lessons was based on a fairly stable cycle of activity. Most frequently each cycle just filled one lesson but sometimes they would cross-cut lesson boundaries.

To begin with the teacher would usually spend about 15 minutes demonstrating a particular technique, relationship or rule on the board. The next phase consisted of a question (teacher) and answer (pupil) session in which the teacher tested the pupils' grasp of what she had been talking about. This completed, the pupils would be set to do examples from either their textbook or the board. During this phase the teacher would move around the classroom examining pupils' work - especially pointing out errors. Mrs E also gave pupils extra help individually during this phase - Mr A and Mr F tended not to[3]. The next phase consisted of 'marking'. The teacher would read out the answers to the examples and the pupils would 'tick or cross' their own offerings. It can be seen that the teacher was the active party - directing and structuring the cycle from start to finish. There was no direct sense in which the pupils' learning was self-regulated. This is clearly shown by the fact that all the pupils were expected to learn at exactly the same rate. Neither was the pupil in any way active in selecting topics, approaches, etc. For the most part the pupils appeared to accept their passive role. It was only occasionally, for example, that a pupil would ask a question. Much more commonly he answered questions directed to him. Those pupils who did attempt to redirect the course of a lesson (or cycle) were usually unsuccessful. Two examples from Mrs. E's lessons with 1BQ will serve to illustrate this.

In the first she has decided it is time to mark the examples the pupils have been doing. The pupils have been told to stop working and to listen:

Mrs E: Answers to question 1. Mark your own book. Tick or cross.
(She reads some answers. Keith puts up his hand).
Mrs E: Just a minute Keith.
(Keith puts his hand down. She finishes reading the answers).
Mrs E: Right, next time we'll ....
(Bell goes for end of lesson)
Mrs E: Right, off you go.

Keith had failed to redirect the exchange. He left for his next lesson with his query unanswered. I followed him and asked him what he had wanted to know. It was whether his 14/21 was 'right' - the answer read out had been 2/3. By not answering his question the teacher had missed an opportunity to emphasize or explain the importance of simplifying fractions. It is true that this occurred very near the end of the lesson, and that the teacher was probably very aware of the short time available to her for giving the answers, but it is important to note that the answers were often read out at this stage of a lesson (given the way cycles intersected with lessons) with the result that many pupils had to be ignored (if the answers were to be read fully). This 'ignoring' was therefore a direct result of the teacher-imposed cycle/lesson structure, which had the effect of rendering the pupil passive when answers were being given.

The next example will serve to show that, even during question and answer interchange between teachers and pupils, the latter were expected to merely answer and not to question - i.e. to be relatively passive. The right to initiate an exchange, that is, was the teacher's. Mrs E was writing notes on the board. She used the abbreviation n.b. The exchange:

Mrs E: What does n.b. mean?
(no responses)
Mrs E: Not note briefly but note .... well.
Patsy: Why not n.w. then?
Mrs E: Are you chewing? I've told you before. Put it in the bin!

Here Patsy's intelligent question was not answered[4]. (She did not do latin). The teacher merely had her attention drawn to Patsy's rule-breaking by it. It is a good example, in Bernstein's terms, of a meaning being assigned rather than achieved. The pupils received no further explanation of this apparently odd fact - that n.b. equals 'note well'!

On the basis of the above considerations I should like to tentatively suggest that the form of social relationship (one involving a passive learner) in the instructional context of the observed maths lessons was of the type associated with a restricted code rather than an elaborated code in Bernstein's theory.

Maths: Content

The concern here is with the typical content of the learning in these maths lessons. The emphasis was on the teaching of standard techniques for the solution of standardized problems. There was a special emphasis on rules and 'tricks' (usefui, of course, if learned thoroughly and applied in the proper context). I shall illustrate the nature of this typical content with examples from all three maths teachers' lessons.

I shall consider first the work on percentages that Mr A did with 1AQ. To solve a standard problem like "Find 12% of £68" the pupils were taught a series of steps (rules) to be learned, e.g. "Put 12 over 100 and then times by 68". They were not required to know why this 'worked'. Furthermore, when actually working through these problems, the pupils were encouraged to use tricks which are clearly context-specific. For example, "To divide by 100 move the decimal point 2 places to the left". This is, of course, of some use. It must be noted, however, that a pupil would not be able to divide a number like 9.6 by 100 unless he knew another rule ('insert a nought') to use in conjunction with the first. This clearly shows that the original rule is specific to a numerical context in which at least two digits precede the decimal point. It might be added that, in the ten lessons of Mr A's teaching observed, the pupils received no explanation (in terms of number bases and place values) of why this rule worked.

I shall now consider examples from Mrs E's lessons. In teaching 1BQ how to do long multiplication with decimal numbers she emphasized another rule or trick. In order to multiply 7.61 by 16.3 the pupils were instructed to first multiply 761 by 163 and then to apply the rule (which involves counting the places after the points in the original and then counting back the same number in the answer) to ascertain the position of the final point. They were not told why this works, and neither was an alternative method (the rough check) emphasizing understanding rather than rote-learning presented to the pupils. Mrs E's rule, or, in Bernstein's terms, operation, is again context-tied. It depends on the use of a particular setting out procedure. If a pupil, in a multiple choice examination, were to be given 1.10 x 2.11 = 2321 and told to fill in the point on the right-hand side, the application of the rule would produce the wrong answer - because of the zero's presence. He would need to know another rule to get over this hurdle. On the other hand, if he had been taught the rough check method he would still be able to see that 1(approx.=1.10) x 2(approx.=

2.11) = 2. and then fill in the point to give 2.321. I have discussed this example at some length in order to make clear the sense in which these rules and tricks are context-specific.

Another example from Mrs E's lessons will make it clearer still. In discussing the multiplication of directed numbers (i.e. +ve and -ve numbers), the teacher had told the children that "two negatives give a positive". This is, of course, true. Later in the lesson several pupils produced "-2 + -2 = +4" instead of -2 + -2 = -4. They had applied the rule - which was given in a restricted form - to the context of addition for which it is inappropriate. As taught it was, therefore, context-bound. (Had it been taught as "When multiplying directed numbers: Two negatives give a positive" it might have caused less confusion - the context of usage is at least then made plain). Further to this the pupils were given no explanation of why this rule worked at all. Such explanations do exist[5]. Mrs E made her position plain: "It's best to teach them rules .... They can't cope with anything else"[6].

One last example will be given from Mr F's lessons to 1BQ. Some pupils had added 2a + 5 + a to give 7a - thus compounding two errors. Mr F, in correcting this, emphasized a rule: "you mustn't add letters to numbers". The use of "must" puts this into the category of an obligation - he did not say "can't". There was no attempt by Mr F to use an analogy or some other method to show the pupils why they could not add letters to numbers[7]. He expected the rule to be rote-learned.

It has been the aim of the above discussion to show that the content of these lessons has two distinctive characteristics. Firstly, it is taught as a collection of context-tied rules, tricks and steps; and secondly, it is taught without verbal elaboration of underlying principles. In the terms of Bernstein's (1971b) paper on 'classification' and 'frame' it is the surface structure, rather than the deep structure, of the subject that is emphasized. On this basis I want to characterize these lessons as emphasizing particularistic, rather than universalistic, orders of meaning. These are, of course, associated with a restricted communication code.

Science: Form

It is of particular interest to consider examples illustrating the degree of pupil activity from the thirty-four periods of science observed. Since a Nuffield science programme was followed one might expect, on the assumption that Nuffield practice is in line with Nuffield rhetoric, a relatively active learner-role to be present. Examples will be considered from three typical situations: the pupils doing experiments, the teacher either doing a demonstration experiment or collating pupils' results, and the conclusion-drawing session.

To illustrate the degree of pupil activity in relation to what is learned, a series of typical[8] examples from the eight physics periods of 1AQ observed will be discussed. In these lessons, the children were performing various experiments with simple electric circuits. In one lesson, the discovery-to-be-made was that, in a simple series circuit, the magnitude of the electric current is the same at all points. For this purpose the children had set up a circuit including a battery, several bulbs, and an ammeter (which could be inserted at different points) to measure the magnitude of the current. Several pupils who clearly knew in advance the result they were seeking came to the teacher worried because they had discovered slightly different current flows at different points in their circuits. There exist a number of possible reasons for this - mainly, that, as the lesson progressed, the battery may have become weaker, and that, as the pupils changed the position of the ammeter, small differences in the resistance of the circuit might have been caused. Mr C's answer to all these queries, however, was not to explain to the children (nor ask their opinion) why these discrepancies occurred but to tell them "not to worry" and try again. What must be emphasized here is that it was the authority of the teacher that legislated over the possible alternative authority of the pupils' findings.

Another example from the next physics lesson illustrates the same phenomenon. The children now had a circuit containing a battery, a bulb, an ammeter, and a beaker containing two electrodes for immersion into various liquids. The bulb and the ammeter both functioned to indicate a flow of current in the circuit and hence through the liquid in the beaker. Susan and Paul both independently asked the teacher how it was that, with one particular liquid, the ammeter registered a current flow but the bulb remained unlit. This query was intelligent, showed evidence of curiosity and could have been used to expand the pupils' understanding of electrical phenomena, but the teacher again told them "not to worry" and to "just write down the ammeter reading". The teacher, by legislating away pupil-discovered problems, clearly casts the pupils into a passive role (low autonomy) as far as learning is concerned. To do this he relied on the authority inherent in his status as teacher of physics. It is not difficult to see that the teacher operated with an implicitly didactic theory of learning in these lessons - even in the context of an officially Nuffield curriculum. In the observed science lessons taken as a whole, the pupils were not encouraged in their attempts to become active partners in the learning relationship - because of the way teachers used their authority.

I want now to consider some examples where the teacher was explicitly directing the classroom activity. The first is from a chemistry lesson in which 1BQ were being taught about elements, mixtures and compounds by Mr G. The teacher performed various experiments as demonstrations. The pupils were gathered around the front bench watching and filling in the results of the teacher's experiments in a table they had drawn up on his instructions. Several pupils, realizing that they need not pay much attention, just copied from his table on the board - in which he put his results. Jill and Sheila, for example, were discussing haircuts. The teacher eventually arrived at the making of the compound hydrogen chloride (a gas). He then, as part of his demonstration, put a lighted splint into it. It should have quietly "extinguished" but, in fact, it "popped". The latter occurred because of the presence of uncombined hydrogen - left over from the compounding process. The teacher proceeded to tell the pupils that the splint should have extinguished and that they should write this fact down - not what actually occurred. He did not explain the reason for the 'wrong' result to them, but only to me afterwards. The pupils accepted his command to write down what they had not seen without question. Their role in this lesson was, arguably, somewhat passive. Not only were they merely observing a demonstration of results but even decisions as to what they observed were the province of the teacher - presumably on the basis of his greater experience of (as an 'authority' on) chemistry.

A similar example was recorded during a biology lesson of 1BQ's. The children had completed experiments on the cooling curves of flasks of various sizes. Each of the eight groups had dealt with one particular size and type of flask. Towards the end of the lesson the teacher (Mr H) started to collect results and collate them, in tabular form, on the board. The results were to be represented graphically - the teacher explained how. In doing so he told the pupils to change a reading of 91 degrees in the results to make it 90 - in order to make the choice of a scale for one axis of the proposed graph simpler. There is little evidence here of an active learner changing or disturbing received meaning systems. Not only is the pupil relegated to the role of mere collector of results (as opposed to interpreter) but even his results are subject to 'correction' in the light of the teacher's view of convenience. It is the teacher who is active here.

The last set of examples relate directly to the interpretation of the 'findings' of experiments - the search for a 'conclusion'. This was apparently an obligatory (and ritual) way of ending a series of experiments on any topic. Usually the teacher would get the pupils to pack away the equipment and then, when the pupils were "sitting quietly", would request a "conclusion" from them. Typically a pupil would offer a sentence or two, would be thanked but told "it's not quite what we're looking for", and then the teacher would proceed to dictate the 'correct' conclusion. I will give some examples to illustrate the observed variations on this theme. Mrs B in a chemistry lesson on reactivities with 1AQ - in which the pupils had been doing the

experiments, said, after the apparatus was packed away, "we must get a conclusion". She then stated what should have occurred - just pausing to check the pupils had obtained the right results - and then went on to dictate a conclusion. The pupils played no part in its production. In another lesson, physics with 1BQ, the same teacher followed a similar technique. After drawing up the results of pupil experimentation on static electricity in tabular form on the board, she asked, "who's going to give us a conclusion?" Jenny attempted this task. The teacher muttered "O.K." in response but added "not exactly". She then dictated the right conclusion. There was no chance for the pupils (several had their hands up) to engage in any discussion with the teacher on the derivation of this conclusion from the results. Similar events were recorded in the lessons of all the science teachers. Mrs D, for example, dictated a conclusion to 1AQ in biology (on the rates of cooling of flasks) which related to experimental findings produced by 1AQ with a different (student) teacher several weeks previously. No attempt was made to involve the pupils in its derivation.

This discussion has considered at least one example from each of the teacher/subject combinations comprising the science curriculum of 1AQ and 1BQ. It has tried to show that, at least in the lessons observed, it was the teachers, rather than the pupils, who were active in relation to the meanings being made available for learning. The teachers were observed to censor pupils' results (and their own) as well as impose dictated conclusions on pupils' findings. In all such cases the teacher was apparently operating as an 'authority' on his subject. The pupils appeared to be seen as ignorant learners who were incapable of contributing anything other than findings to the exercise of structured discovery. Status, that is, was central to the relationship of teacher to pupil in the instructional context. The pupils were continually being rendered passive. Two last examples will serve to justify the use of such an active verb as rendered here. Mr C, in the physics lesson in which 1AQ were to assess the conductivity of various liquids, found it necessary to caution the class thus: "I'll give you a list of the liquids we'll try. The first one will be distilled water. You must wash the beaker between liquids". He was making the point that, if washing was not done, remains of one liquid would remain to contaminate the next. One pupil queried: "Won't we have tap-water in it?" implying that contamination would be caused rather than cured by such washing. The teacher replied: "The second one will be tap-water" - thus signalling his failure to appreciate the pupil's point. The pupil did not try again. The other example occurred in one of Mrs B's chemistry lessons to 1AQ. In doing a revision example on reactivities she said: We're going to have a fictitious element called 1AQ". Several pupils asked, quite clearly, what fictitious meant. The teacher repeated her original statement and went on. This action on her part may have been precipitated by the pupils having 'shouted out' their inquiry - thus breaking the 'hands up' rule - but the result of it was probably that several pupils sat through the example wondering what the scientific term "fictitious" meant. Again no pupil tried a second time. Their attempts to redirect the course of the lesson had failed completely.

It is difficult, in the light of the above discussion, to see what advantage the pupils gained (other than extra practice in the use of apparatus) from doing Nuffield rather than traditional school science. On the basis of the above demonstration that pupils were relatively passive in these lessons it will be tentatively concluded that, with respect to 'form', the pedagogy of these science lessons approximated the type earlier associated with a restricted code.

Science: Content

The concern here is with what was made available for learning in the observed science lessons. It was certainly the case that principles - in the sense of scientific rules and laws - were being taught. It will be shown below, however, that, with respect to their use by children in problem-solving situations, there was a tendency for them to be taught in a context-bound manner. There was, that is, a considerable tendency for the teachers to rely on rote-learning by the pupils - as in maths. What

tended to occur was that, after the stating of a particular principle - as the conclusion to an experimental session for example, the teacher would then teach the children a context-bound trick or rule to facilitate its application in examination settings. The teacher would be satisfied with the children somehow achieving the 'right answer' instead of searching for evidence of a deeper understanding. The examples below will illustrate various aspects of this tendency.

Two examples from the chemistry lessons of 1AQ will be considered first. In the first the pupils had just completed some experiments concerning the 'reactivities' of various metals. The teacher had dictated a conclusion. This basically stated that if an oxide of a more reactive metal is heated with a less reactive metal then the more reactive metal will retain its oxygen and, vice versa, if an oxide of a less reactive metal is heated with a more reactive metal then the less reactive will lose its oxygen to the other. The teacher then went on to 'explain' how to solve problems on reactivities. She pointed out to the children that reactivity series are set out vertically on the printed page. (Each consists of a series of elements running from the more reactive down to the less reactive). The teacher further pointed to the importance of one metal being spatially above or below another in such a series. She explained that if a metal were above another then it would steal the other's oxygen - if below it would not. She said: "You see - the homework's easy". The children had been taught a context-bound rule or trick for solving reactivity problems - one which took the vertical manner of presentation of such series for granted. Several children were observed to make a note of the rule in the back of their chemistry exercise books.

The second example occurred during a revision period for the end-of-year examinations. Mrs B had asked the class: "What's a noble gas?" She actually wanted examples (argon, neon, etc.) rather than a general definition. Susan, however, apparently eager to do well in these examinations, asked a question which started the following exchange:

Susan: How do you know which gases are which?
Mrs B: It means they're unwilling to mix with anything else, unwilling to react.
Susan (starting to write): What was that again?
Mrs B: Unwilling to mix with anything else. (She sees Susan writing) But you don't need to know that this year - that's next year.

It can be seen that all the chemistry teacher required of the children in the forthcoming examination - which she had seen - was that they could name a few noble or inert gases. There was not only no emphasis on the pupils' understanding what generally characterized such a gas but Susan was actually instructed to take no interest in this - until next year. The pedagogic emphasis (and the revision nature of the lesson served to highlight this) was on teaching to pupils what they needed to 'get by' in certain well-defined (examination) settings. Susan summed up the implications of all this very well: "This doesn't test your brain - just if you've got a good memory. That's why ...." The teacher interrupted her at this point - stating that there was work to be done.

A similar lack of emphasis on understanding in terms of giving reasons is shown in the following example. Mr C, during physics with 1AQ, was pouring what he called 'distilled' water into a beaker. The following exchange occurred:

Anne: That can't be distilled water - it's got germs in it.
Mr C (condescendingly): It's not biologically sterile, it's distilled. That's not the same.

The teacher used his greater knowledge to cut the child down to size - reminding her of her status as 'ignorant learner'. He did not go on to explain what he meant and why, therefore, Anne's point was 'incorrect'.

The last set of examples to be discussed will be taken from the biology lessons of 1BQ. It had been 'explained' to them in a previous (unobserved) lesson that the ratio

of surface area to enclosed volume of 'similar' solids is not a constant. Using cubes as an example, the teacher had demonstrated, by calculation, that larger solids have smaller surface areas in relation to their volume. The pupils had then gone on in the next (observed) lesson to do an experiment to determine the rate of cooling for variously sized water-filled conical flasks. The teacher required them to relate the findings of this experiment to the 'principle' earlier derived from a consideration of cubes. The children showed no sign of making any connection. The teacher went through the example with cubes again. At no stage, however, did he explicitly relate heat loss to the magnitude of the surface area - it was this, I feel, that was preventing the children from 'seeing the point' of the exercise. The following exchange now occurred. The teacher was holding up two flasks - one of 100 c.c.s. capacity, one of 250 c.c.s:

Mr H: Which flask has the smallest surface area in relation to its volume?
Linda (= only hand up): The 100 flask.
Mr H: No
(he asked another pupil whose hand was not up. He gets "250" for an answer - the right answer. It was, of course, only a binary choice situation to start with).
Mr C: Yes, anyone not understand?
(no responses)

The teacher then proceeded on the apparent assumption that the pupils had understood. His evidence for this was presumably the one right answer publicly heard. The successful pupil had had only to note that, since the 100 c.c.s. flask was wrong, the 250 c.c.s. must be correct, to produce this. Further probing would have been necessary if the teacher had been concerned primarily with 'understanding' rather than the mere production of a correct answer.

Later in the lesson the 'principles' were applied in considering the relation of the size of animals to their climatic environment. It had been noted that warm-blooded animals tend to be larger in the Arctic than in other, warmer regions. The following exchange then occurred:

Mr H: Why must they be larger?
Pupil (only a few hands up): Because they have a small surface area.
Mr H: Yes, because they have a small surface area in relation to their volume.

It must be noted that the pupil's answer, taken literally, is absurd because it talks in absolute, rather than relational, terms of a "small surface area". The teacher, rather than following up this evidence of a lack of understanding of the principles involved, 'doctored' the pupil's response as he repeated it - introducing the idea (which he, of course, understood) of area in relation to volume. My impression, from observing this lesson, is that most of the children 'got by' when solving problems on animal size and climate in the following (rote-learning) manner:

(1) Large objects have smaller surface area. (This is, taken literally, absurd - which might explain the apparent perplexity of some of the children in this lesson).
(2) Therefore, they lose heat less quickly. (This is not unreasonable, given (1)).

The few children who, by the end of the lesson did seem to grasp the principles involved (i.e. those who produced right answers) perhaps replaced (1) by the correctly learned rule that 'larger objects have smaller surface areas in relation to their volumes'.

One particular problem with this lesson for the children may have been the lack of attention paid to the relationships existing between volumes, quantities of heat, surface areas and rates of cooling which the teacher appeared to take-for-granted as commonsense. This conclusion is supported by the following pupil question asked very near the end of the lesson:

Carol: I understand but why does it make a difference to the heat.

It was only then that I realized that the teacher had not made verbally explicit the relation between area:volume ratios and heat loss. It was perhaps seen as too 'obvious' for any such explication to be necessary.

The examples discussed clearly show a substantial degree of emphasis by the teachers on context-bound tricks and on rules – the latter to be learned rather than understood. The examples also demonstrate that there was not a great deal of emphasis on the verbal exploration of the reasons for various phenomena and rules but rather on the pupils being able to produce the right answer by some method or other. These findings suggest that, with respect to 'content' as defined here, the concern was with particularistic meanings. The communication code associated with these in Bernstein's theory is the restricted code. Certainly there was little in these lessons that could be produced to suggest the existence of an elaborated code pedagogy.

Conclusion: Codes and the Instructional Context

The discussion above has comprised an attempted analysis of the observed pedagogy in terms derived from Bernstein's socio-linguistic codes thesis. It is considered that it provides a reasonable empirical basis for the conclusion that the pedagogy predominant in these maths and science lessons was predicated, in terms of Bernstein's theory, on a restricted communication code.

Some further writings of Bernstein will be discussed below in order to show that the mode of analysis used above does not, in its discussion of pedagogy, conflict with his own recent ideas on the relation of codes and pedagogies.

A Note on Bernstein's Visible and Invisible Pedagogies

This note will relate the above discussion to Bernstein's (1975b) ideal-typical models of visible and invisible pedagogies. In terms of his earlier (1971b) article on classification and framing[9] visible pedagogies are characterized by strong classification and framing, invisible pedagogies by weak classification and framing. A visible pedagogy involves an explicit manner of transmission, an invisible pedagogy an implicit one. With a visible pedagogy the child is evaluated on the basis of specific criteria; with an invisible pedagogy, on the basis of diffuse criteria. Some idea of the meaning Bernstein gives to these terms is conveyed in his description of the textbook- a characteristic tool of visible pedagogy:

> "The textbook orders knowledge according to an explicit progression, it provides explicit criteria, it removes uncertainty and announces hierarchy".

In contrast, Bernstein lists the following six characteristics of invisible pedagogy:

> "(1) Where the control of the teacher over the child is implicit rather than explicit.
> (2) Where, ideally, the teacher arranges the context which the child is expected to rearrange and explore.
> (3) Where within this arranged context, the child apparently has wide powers over what he selects, over how he structures, and over the time scale of his activities.
> (4) Where the child apparently regulates his own movements and social relationships.
> (5) Where there is a reduced emphasis upon the transmission of specific skills.
> (6) Where the criteria for evaluating the pedagogy are multiple and diffuse and not so easily measured."

Bernstein argues that this type of pedagogy is, at present, mainly represented in practice by a particular form of "pre-school/infant school pedagogy" but adds that, after the beginning stage of education:

> "the continuation of the invisible pedagogy, in the form of an integrated code, is likely for working class children, and its later institutionalization for the same children at secondary level".

What is of particular interest here is that he argues that it is invisible pedagogy, not visible pedagogy, that demands an elaborated communication code of the child:

> ".... because it originates within the middle class, it presupposes a communication code (elaborated code) which orients the child early towards the significance of relatively context-independent meanings".

A consideration of the pedagogy in the observed lessons, described earlier in this section, will place it firmly under the heading of visible pedagogy. To begin with, there was clear evidence of strong classification. In the curriculum, maths, physics, chemistry and biology were completely separate activities and timetabled as such. Furthermore, the teachers, at least, thought of them in this way. Mrs D, for example, in discussing ratio in a biology lesson, felt it necessary to comment to the children (1AQ):

"Let's see how this applies to biology, because you might think it's rubbish doing it in biology, but it's not".[10]

There was also strong classification with respect to status. Pupils were organised into groups on the basis of age and 'ability' and, also, there was clear evidence (outlined in Section II B) of the existence of well-bounded pupil and teacher status categories. Bernstein (1971b) has also observed that:

> "..... the stronger the classification and framing, the more the educational relationship tends to be hierarchical and ritualized, the educand seen as ignorant, with little status and few rights".

It can therefore be considered more evidence for strong classification that, as was shown earlier, hierarchy and ritual did characterize the teacher/pupil relationship in these classrooms and that the pupil did seem to be seen as ignorant (on the basis of the way pupil questions and suggestions were treated by the teachers).

There was also clear evidence of strong framing. The teacher[11] selected the topics in all the 59 periods observed with the exception of one maths revision period. Furthermore, as was shown earlier, even in Nuffield experimental science sessions, the teacher clearly directed the children to consider certain findings and "not to worry" about others. There was also strong framing over the time-scale of the pupils' activities. They were all expected to learn, for example, at the same rate within any one lesson.

With reference to Bernstein's six points listed above, the following can be said of the observed lessons:

(1) As was shown in Section II control over the child is explicit.

(2) & (3) In maths the child was not, in any sense, exploring a pre-arranged context. The implicit theory of learning in this subject was clearly didactic, not self-regulating.
In science, any exploration of the experimental context was heavily directed by the teacher towards 'findings' pre-selected by him. The latter, that is, did not merely arrange a context for learning but also directed pupil activities in it.

(4) The teacher maintained explicit control over pupil movements (e.g. consider the incident, described earlier, in which Susan left the room without permission) and social relationships - in the sense of seating arrangements.

(5) There was considerable emphasis on the transmission of specific, context-bound, problem-solving skills. This was demonstrated in the earlier part of this section when 'content' was discussed in relation to these lessons.

(6) Criteria of evaluation were relatively specific. The pupils were graded (A,B, C, etc) earlier in the school year on the basis of their performance in tests and homework. The comments from the associated reports to parents showed that there also existed a clear scale for the evaluation of a child's 'moral' worth. Such terms as "co-operative", "mature attitude", "correct attitude" and "pleasant" were used here. This scale apparently evaluated the pupils on the basis of their attitude to the teachers' (use of their) authority.

All these observations point to the pedagogy being of the visible type and hence, according to Bernstein, its not requiring the child to have access to an elaborated code. This adds some support to the conclusions previously reached from a consideration of the data which suggested that these maths and science lessons were predicated, on the basis of Bernstein's descriptive statements on code realization in various contexts, on a restricted rather than an elaborated code.

A Note on Strong Framing over Pacing and its Relation to Pupils' Learning

This note will point to an explanation of 'failure' that might be contrasted with that given by Bernstein in terms of codes. Some observed pedagogic practices which might be expected to impede pupils' learning, even if they are attending carefully to their lessons, will be discussed. Where such practices, or their distribution, seem to be related to the banding system, this will be pointed out. The aim is to show that explanations of failure need to take account of classroom communication patterns and not merely individual pupil characteristics.

One practice observed to be used by all the teachers - of both forms - was the taking of one right answer from a pupil, often one relatively successful in their subject, as evidence of general (i.e. whole class) understanding. The teacher would then proceed as if all the pupils had understood up to this point. This has already been seen in the example from Mr. H's lesson to 1BQ on the cooling rates of variously sized solids (ps 29,30 & 31). Another example will be given here from a maths lesson taught to 1BQ by Mrs E. The topic was percentages and, in doing an example on the blackboard, the teacher had got as far as having $\frac{1}{10} \times \frac{40}{1}$ to solve.

The exchange:

Mrs E: Sandra, what's the answer?
Sandra (no response)
Mrs E: Come on. One times forty over ten times one. What's that? One times forty?
Sandra: Forty.
Mrs E: Yes, ten times one?
Sandra: Ten
Mrs E: Yes. Now, one times forty divided by ten times one?
Sandra: (no response)
Mrs E: Forty divided by ten?
Sandra: Twenty?
Mrs E: No! Someone else?

Two or three pupils: Four.
Mrs E: O.K. I'll put some up on the board.

It will be noted that, although Sandra is clearly totally confused, the teacher proceeds to put up examples to be done by the pupils. Sandra got no extra help during my period of observation even though Mrs E worked hard to see as many pupils individually as was possible within the structure of her lessons. Furthermore, Sandra may have represented only the tip of the iceberg as far as failure to follow this lesson was concerned. According to the earlier half-yearly report issued on each pupil she is in the middle third of this class with respect to maths attainment. She seemed to try hard in the lessons observed and her report had described her as possessing a "good attitude toward her work". The problem for her is one of pacing. This pedagogy, because it involved trying to move the whole class along together, at one pace, caused cumulative learning difficulties for pupils like Sandra. The pace was set, in the immediate situation, by the ability of the 'top' section of the class. The teacher, on the basis of 'enough' right answers (oral and written) from these pupils, took the decision to move on to new concepts and topics. This happened in nearly all the lessons observed but its effects were particularly noticeable in maths. It happened in both classes - because in both the teachers were apparently using the attainment of some 'top' part of the class as a reference criterion by which to pace their lessons. There are several constraints on teachers' behaviour - constituting strong framing over their activities - which might be thought important in any attempt to explain the prevalence of this practice.

Firstly, in the top band class, 1AQ, all work in maths and science is an integral part of the syllabus for O-level G.C.E. examinations. It appears that this teacher practice allows the required amount of the syllabus to be covered each year - even if the work is poorly understood by a substantial proportion of any class. The science teachers, in particular, claimed that their pupils had not "covered" what they should have in their last year of middle school thus "forcing" them to rush through the syllabus this year. In the second band situation, a similar external constraint was pointed to by the teachers, but here it was C.S.E. rather than G.C.E. that was perceived as the cause of the "rush". In science lessons the effects of this fast pacing were exacerbated for the second band by the fact that the two bands shared the same science examination at the end of the year. There was, as a result of this, an attempt made by the teachers of science to the second band to keep up with the first band forms. Since the bands were originally formed on the basis of measured differences in attainment at the point of entry to the school this caused the second band pupils considerable extra difficulties.

The reason pacing was so important is, of course, the hierarchical nature of maths and science as they were taught in these lessons. Each lesson assumed much from earlier lessons. This, coupled with pacing set by the teacher by reference to 'top' pupils, meant that most pupils were, in any one lesson, learning on the basis of shaky foundations of understanding and knowledge. This can be seen from the example quoted above. Because Sandra had not fully assimilated the operations of basic arithmetic she was denied any chance of successfully doing the problems set on percentages. Because of the way the lesson was organised this left her with two clear choices - to struggle with problems she could not possible solve, which she did, or to do no maths at all and run the risk of being labelled "lazy". Because she struggled on she earned the accolade of having a "good attitude" to work. However, it is hard to see how, unless she gets extra help from home or elsewhere, she will ever be able to cope with more complex mathematical problems. It may well be that such differences as exist in the availability of such extra help to pupils are one important factor in the production of rates of educational failure correlated with social class - an association existing even when I.Q. is held constant.[12] One need only assume that parents' willingness and ability (including financial ability) to offer (or organize) such extra help for their children is correlated with measures of occupational status.

The observed emphasis on covering the syllabus quickly might also be expected to form a part of any explanation as to why pupil-initiated questions and suggestions were not encouraged by the teachers observed. Several examples of this happening were given earlier. Bernstein (1971b) predicted just this in discussing strong framing over pacing:

> "Because of the hierarchical ordering of the knowledge in time, certain questions raised may not enter into a particular frame".

This calls to mind Mrs B's remark to Susan that the general definition of noble gases was for "next year". Furthermore, the fast pacing may even go some way towards explaining the fact that some teachers were observed to take too much for granted in explaining new material to pupils. If Mr H had not felt the need to rush (and he did express such a feeling to me in conversation) he might perhaps have explained more explicitly the connection between area:volume ratios and heat loss in the lesson discussed earlier.

It is difficult, in the light of the above discussion, not to agree with Bernstein's (1971b) remark that:

> "It may well be that frame strength, as this refers to pacing, is a critical variable in the study of educability".

It is, perhaps, partly because of this attempt to move some children through material at a rate they cannot easily manage - a rate presumably set by the performance of 'more able' pupils in external examinations (ultimately), that so many pupils in our schools come to express a dislike of, and 'fail' at, maths and science.

Notes to Section III

1. This researcher, given the time available, could not attempt a statistical analysis of the instructional speech comparable to that attempted for the regulative speech in Section IIA.

2. Bernstein describes two modes of an elaborated code. He writes (1965):

   > "It is possible to distinguish two modes of an elaborated code. One mode facilitates the verbal elaboration of interpersonal relations, and the second facilitates the verbal elaboration of relations between objects".

   He labels these the "person" and "object" modes respectively. Here, in considering maths and science, we are concerned with the object mode.

3. They, instead, spent their 'spare' time preparing sixth form lessons and end-of-year examinations as well as, in the case of Mr A, talking to me while the pupils worked on.

4. Patsy was generally regarded as a 'bad' pupil.

5. For example, one such method explains the rule in terms of a postman coming to take away incorrectly delivered bills. Bills, of course, carry a negative sign as far as one's bank balance is concerned. As a result, therefore, of the taking away (-) of bills (-) one becomes better off (+). See Sawyer (1943).

6. This research is not concerned to answer the questions suggested by this remark -

i.e. can these pupils, in any context, successfully understand maths at a level deeper than 'rules'. It is felt, however, for reasons that will be partially presented later in this section, that they are not given an adequate chance, in these classrooms, to demonstrate any such ability.

7. For example, "a" could be given various numerical values to demonstrate the absurdity of $2a + 5 + a = 7a$.

8. The pupils played a similar role in relation to the teachers and knowledge in all the science lessons. The examples have been chosen to be as representative as possible.

9. These terms are defined as follows (Bernstein, 1971b):

   "Classification .... refers to the degree of boundary maintenance between contents".

   " .... frame refers to the degree of control teachers and pupils possess over the selection, organisation and pacing of the knowledge received in the pedagogical relationship".

10. One can only guess, because of the limitations of this piece of research, whether the pupils did feel such an intrusion from maths as unreasonable or odd. The teacher, clearly socialized into the notion of separate, well-bounded disciplines, assumed, in her remark, that the children were already, in their first year at secondary school, similarly socialized.

11 Considered more carefully, there was certainly strong framing, in the immediate classroom situation, over what the pupil learned, but there was also, at a different level - because of the existence of syllabi for external examinations, strong framing over the teacher with respect to the selection of material for inclusion in lessons. At this level, therefore, it is far from clear that the teacher selected the topics - although it remains true that the pupils certainly did not.

12. Such an association of rates of failure with social class - even with ability held constant - has been demonstrated by, amongst others, Douglas (1964, 1968) in his longitudinal study of a representative sample of children born in the first week of March, 1946.

Section IV

In Section IIB, the existence of shared understandings in these classrooms was discussed in relation to the control of pupils' behaviour by teachers. In this section, the examples discussed will illustrate another aspect of such taken-for-granted knowledge - the knowledge teachers claim to have of pupils' cognitive and personal characteristics. Then, to conclude the section, an attempt will be made to relate the discussion back to our earlier concern: which of Bernstein's codes better describes the life of the classrooms observed?

Bernstein (1971a) has argued, in discussing "personal families - open communication system" - i.e. those associated with an elaborated code, that "the child learns to make his role rather than this being formally assigned to him". This making is seen, furthermore, as a continuing process. On the other hand, in "positional families - closed communication system" - i.e. those associated with a restricted code, "the child takes over and responds to status requirements". It can be seen that, basically, Bernstein is associating, in the family context, achieved roles with an elaborated code and ascribed/assigned roles with a restricted code. The problem in applying these ideas to the school setting is that, with reference to status/role/identity, the school deliberately sets out to judge and sort children, on the basis of achievement, in a way the family does not. Because of this there is clearly some element of achievement, or, at least, teacher-perception of it, in most pupils' public identities and statuses in the school. Because of this difficulty (of applicability), and partly because of the limited nature of this piece of work, an attempt will not be made here to determine whether particular statuses, roles or identities have been primarily achieved by, or ascribed to, pupils. Instead, an attempt will be made, which will be related to Bernstein's notion of boundary maintaining procedures, to point out some of the problems likely to be involved for any pupil who might wish to remake his public identity so that it is more in line with those considered desirable by the school. It will be demonstrated that once a child's identity is publicly "well-known" - particularly once teachers feel they have a clear idea of what any child is, this identity is subject to continual (and ritual) confirmation during interaction - to the extent that even disconfirming evidence for it is sometimes ignored or explained away harmlessly. Illustrative examples will be used to show that there are processes at work in these classrooms that tend to stabilize, rather than facilitate the remaking of, teachers' perceptions of 'what pupils are'. There exist, that is, strong boundary maintaining procedures with respect to teachers' conceptions of pupils. Clearly, with reference to the stability of public identities, any conclusions reached on the basis of such a short period of observation must remain tentative. Ideally a longer-term longitudinal analysis of such processes is needed. However, even in a short time, several important features of this identity-maintaining phenomenon became clear. It will also be shown that knowledge of the public identities of pupils was taken-for-granted (i.e. left implicit) in many teacher utterances. Both these phenomena, the existence of strong boundary maintaining procedures with respect to identities, and the taking-for-granted of knowledge of such identities in communication, add further support to the earlier conclusion suggesting that interaction in these classrooms was of the sort associated with a restricted code in Bernstein's theorizing.

Before going on to discuss the public identities of individuals, the centrality of the banding system in this area must be illustrated. In this school, as in the one studied by Keddie (1971), teachers conceived of pupils primarily in terms of their band membership. In Bernstein's terms the position, or status, of a pupil was a central determinant of teachers' views of his personal characteristics. It will be seen below that once a pupil has 'achieved' membership of a particular band, teachers tend to ascribe (assign) to him 'appropriate' intellectual and personal characteristics. It must be pointed out that it is not being claimed here that certain real cognitive differences do not exist, on average, between the bands, but that it is considered that the existence of such strongly held teacher beliefs may well have adverse effects

on the efforts of second band pupils to learn. For example, Mrs E's belief of 1BQ that "none of them are that bright of course" was used, in conversation, to justify the low marks a hard-working pupil had been achieving over the year. It is possible that, because of her beliefs about the range of abilities in 1BQ, she found it easier to accept such pupil failure in the second than in the top band. Similarly, Mr F described 1BQ as "harmless, a bit thick" adding that he was more concerned with senior forms and did not have "time to teach 1BQ properly". Teacher beliefs about the relation of ability to bands, that is, may cause teachers to set lower standards for themselves (as well as for the pupils) when teaching second band classes - it is that much easier to blame the pupil for his failure to learn. As a final example of this Mr H, after the lessons on heat loss from animals described earlier, said to me, about the relation between the ratio of area to volume and heat loss, "it's a difficult idea for the Bs". Yet, arguably, some of the difficulty experienced by the pupils was a result of his failure to make certain important points explicit.

Another aspect of these teacher beliefs will be discussed briefly now. It is quite possible that the direct communication[1] of these beliefs to the pupils by the teachers may, by setting up various expectations of them, have had a demoralizing effect on the second band pupils' learning. Mr. H, for example, in teaching 1BQ, told them to put down their pens and listen, and then added, "You'll need to draw a graph. Past experience tells me, with this class, you'll need all your wits about you". One wonders how strongly some pupils may resent such remarks - thus impeding the development of a working relationship between teacher and pupil. Several similar remarks, but concerning individuals rather than whole classes, will be considered below. It can be added that this process appears to work both ways. Mrs B, for example, in telling 1AQ about the examination in chemistry they were soon to share with 1BQ, said, "For you, it's easy". Social processes of this sort might be expected to form a large part of any attempt to explain the results of studies (e.g. Rosenthal and Jacobson, 1968) demonstrating the effects of teacher expectations on pupil performance.

One last apparent consequence of these beliefs will be considered here. According to the teachers,[2] they affect (unofficially) the curricular material offered to the two bands. For example, with 1 BQ, Mr H claimed to emphasize only "the main points", adding, "with this type of form that's very important". Other teachers made similar remarks. Given that 1AQ and 1BQ were to share an end-of-year examination in Mr H's subject, it can be seen that his use of his knowledge of what curricular material particular types of pupils can manage, accurate or otherwise, will tend to put second band pupils at a disadvantage in this examination - assuming it covers more than the main points. We have here all the elements of a classic self-fulfilling prophesy.

This discussion of band-related beliefs has emphasized the cognitive dimension. It must be added, before going on, that a similar set of beliefs was held by these teachers about the rule-breaking behaviour of pupils from different bands. A representative statement, from Mr A, was, in conversation with me about discipline, "you might find some trouble in the 1Bs".

Several examples, from both classes, will now be discussed in order to illustrate the manner in which individuals' public identities tended to be confirmed during classroom interaction. It will be seen that teachers tended to ascribe motives, degrees of effort, ability and other personal features to pupils on the basis of a view of them derived from their past experience of them - even if this conflicted with presently available evidence.

The first example is from a physics lesson taught to 1AQ by Mr C. He was returning the pupils' exercise books. Anne and Susan, both generally regarded as 'problems', had attained full marks for a piece of homework. Mr C commented: "Mighty suspicious of your ten Anne, and yours Susan". Susan made it clear that

this remark had annoyed her. The teacher responded, sarcastically, that he would ask a question of Susan to "test your new found prowess". Susan actually got it right. The question, however, of whether the girls actually got their marks, as implied by Mr C, by cheating is not a critical one here. The teacher's readiness to assume that they did is. In fact Susan appeared to be trying hard (legitimately) in the lessons I observed. Two other relevant incidents involving Susan occurred in the same lesson - both of which appeared to irritate her. In one the teacher said to her, with reference to my presence, "someone doesn't know your name - lucky". In the other, having given her permission to sit next to Anne, he added, "that's taking my life into my hands". It can be seen that the teacher is interacting with Susan on the basis of a fixed, well-bounded view of what type of child she is. This might be expected to contribute to a maintaining of this particular public identity ('problem pupil') rather than facilitate any remaking of it. The boundaries of a particular view of Susan are being continually, and publicly, redrawn.

An incident from a biology lesson of 1BQ will now be described. Here a child was publicly reminded of her status in the school setting. The teacher was trying to elicit pupil suggestions for the scale of a graph that was about to be drawn. Jill had her hands up:

Mr H: Have you found a scale?
Jill: I haven't got any graph paper.
Mr H: I thought that was too good to be true.

One can only speculate on the effect of this remark on Jill but it is clear that this teacher is also operating with well-bounded notions of particular pupils' characteristics. This is illustrated by another remark of his. He said of Patsy, who was generally regarded as lazy and unintelligent, that "she works hard in my lessons - perhaps it won't last". It can be seen that he is already, because of the general view, sensitized to detect any sign of laziness on Patsy's part. It may well be that if she has an off-day in his lesson it will be interpreted completely differently from the off-day of a 'good' pupil.

One last example will be discussed. When Jenny of 1BQ (usually regarded as 'thick') got perfect results in a physics experiment, Mrs B said, to the whole class, "I don't believe it". It can be seen that even the getting of 'perfect' results is a suitable occasion for a pupil's existing 'poor' identity to be ritually re-emphasized. It is considered that the above examples illustrate how difficult it must be, because - in Bernstein's terms - of strong boundary maintaining procedures, for a pupil to effect any change in a teachers' view of him or her.

It would seem that the above findings can best be accommodated by Becker's (1952) hypothesis that teachers have a concept of an 'ideal' pupil and experience 'problems' with pupils to the degree to which they fail to satisfy the concept's requirements. He delineated three areas in which teachers might experience such problems:

> "(1) the problem of teaching itself, (2) the problem of discipline, and (3) the problem of the moral acceptability of the students".

Two examples of comments heard in the staffroom will further support this interpretation. In the first, a middle-aged, female teacher (not in my sample) was discussing mixed-ability teaching with a young member of staff. He had expressed an opinion in favour, guardedly, of mixed ability teaching. She replied: "Really? You won't think the same when you've got your own children. I have, and I couldn't bear the thought of them mixing with the yobs". The problem here was one of moral acceptability. In the second example, a teacher who had just been invited to join another sunbathing replied: "No thanks! I've got 2Bs next. I'll need my wits about me". The problem here was apparently one of discipline. Clearly neither the

"yobs" nor the 2Bs fit the concept's requirements. It can be added that 1AQ, as a class, did. Mrs B, for example, said, with reference to the coming examination, "it'll be easy for them - they're the brightest of the 1As this year". And Mr B said of them: "they're easy to teach".

Becker, in his American study, demonstrated that, in the main, it was lower class pupils who were regarded as problems. Teachers in this English school saw the second band pupils as especially difficult in comparison with those from the top band[3]. It was shown earlier (p 3) that 1AQ and 1BQ were differentiated by social class. It seems, therefore, that, if this result is taken as representative of the whole of the first and second bands,[4] on average, it is the children of fathers with manual occupations who are seen by the teachers as causing them the most problems. It must be added, however, that there were a number of glaring exceptions to this 'on average' rule. Susan, for example, came from Social Class II.

In relation to Bernstein's codes one other important aspect of teacher utterances about identity must be discussed. In the classroom context these remarks assumed shared knowledge of pupils' public identities. It will be noted that many of the teachers' remarks to particular children quoted above are linguistically non-explicit - requiring the pupil to fill in the view of him or her that the teacher is operating with. Mr H's "I thought that was too good to be true" does not specify why this was the case. Mr C's "Someone doesn't know your name - lucky" and Mrs B's "I don't believe it" are similarly verbally non-explicit. Mrs E, in discussing homework in which the children had had to choose a shape and then geometrically enlarge it, said to Lorna, whom she had previously described to me as a "lazy, tarty type", "Easy shape you chose!" Here it is being implied that Lorna has been lazy but this is not stated explicitly[5].

To conclude this section an attempt will be made to relate the above discussion to Bernstein's codes thesis. At one level it is easy to relate the teachers' use of linguistically non-explicit utterances, in referring to pupils' identities, to a restricted code since such implicit speech is a defining characteristic of such a code. The rest is not so clear. The teachers are concerned with the individual psychological characteristics of children (as are parents in a person-oriented family) but they tend to see them as unchanging[6], related clearly to the position or status of the child in the school's banding system (which is reminiscent of positional families), and in terms of a number of variously labelled, fixed types of pupil (e.g. "tarty", "bright", "thick", "bone-idle", "yob", etc.)[7] It is also the case that there exist processes - analogous to Bernstein's boundary maintaining procedures - which appear to function to maintain particular public identities of children unchanged. Like rituals (a form of restricted code: Bernstein, 1966) they appear to function to renew and revivify knowledge and beliefs about pupils (and shared by teachers and their fellow pupils) in a relatively unchallengeable manner. Certainly there is little evidence that the pupil "learns to make his role rather than this being formally assigned to him" in the social system of these classrooms. At best, once he has achieved a particular public role or identity it would appear to be difficult for him to change it. For these reasons, in as far as it is useful (for the purposes of this work) to transfer Bernstein's ideas on achieved:assigned roles in the family setting to the classroom setting, it is considered that the above discussion suggests the existence in the classrooms observed of a system of social interaction with respect to identities more nearly of the sort associated with a restricted code than with an elaborated code in Bernstein's work. To this extent, it adds support to the conclusions of Sections II and III.

Notes to Section IV

1. These beliefs were also communicated indirectly to the pupils through the mere existence of a well-understood system of 'banding by ability'. Several second band pupils explained to me that they were thought to be "thick" by the staff of the school. They added, however, that they were not the "thickest". That status was reserved for the immigrant pupils in the remedial classes.

2. Because of the short period of time for which the researcher observed these classes an independent assessment of whether this was actually the case in practice cannot be offered here. The manner of treatment (context-specific rules, etc. being emphasized) of topics was certainly not markedly different for 1AQ and 1BQ.

3. This is reflected, to some extent, in the earlier finding that twice as many control utterances per period were experienced by 1BQ in comparison with 1AQ. (See p 13).

4. Given what is known about the relation of social class to streaming and banding systems in general, this is not an unreasonable assumption to make. Many studies have demonstrated the existence of a marked association between social class and stream/band placement. See, for example, Ford's (1969) work.

5. Here the sensitizing effect of teacher beliefs was actually demonstrated. Other pupils, who had chosen similarly "easy" shapes, were not similarly chastised.

6. The teachers shared what Esland (1971) has termed a 'psychometric' model of the child.

7. It might also be noted that Mr A and Mr F had not even bothered, after nearly a year, to learn individuals' names. This is hardly evidence of any careful attention being paid to pupils' unique psychological characteristics.

Conclusion

Given that the data discussed in this paper was gathered from the observation of the maths and science lessons of just two classes in one comprehensive school[1], one must be very circumspect when discussing its implications. Further empirical research needs to be done. With these reservations in mind, I want now to consider Bernstein's account of educational failure in the light of the findings. It will be recalled that, in terms of the indicators relied upon here, the observed maths and science curriculum appeared to be predicated, in Bernstein's terms, on a restricted rather than an elaborated code. This was demonstrated in terms of a number of indicators for both the regulative and instructional contexts. In Sections IIA and IIB the modes of control, and the speech realizing them, predominantly used by these teachers were shown to be of the sort associated with a restricted code in Bernstein's theory. In Section III, in an analysis of the pedagogy, it was shown, in terms of both dimensions considered - i.e. the form of social relationship mediating learning and the content of learning, that again the observed indicators suggested a pedagogy predicated on a restricted, not an elaborated, code. This was further supported by a consideration of Bernstein's models of visible and invisible pedagogies in relation to the observed lessons. The lessons were found to be best described by the model of a visible pedagogy. The latter does not, according to Bernstein, require an elaborated code of the pupil. Lastly, in Section IV, it was argued that the manner in which teachers organized and used their knowledge of pupils' selves was also evidence for these lessons being predicated on a restricted code more clearly than evidence for their being predicated on an elaborated code. Furthermore, the findings supported the conclusion that this predication of their maths and science lessons on a restricted code was equally the case for the first and second band classes observed - i.e. very roughly, for pupils from non-manual and manual backgrounds respectively. These findings suggest that Bernstein's emphasis, in accounting for relative working class failure and middle class success, on certain pupils lacking an elaborated code is misplaced. If the school curriculum, at least in maths and science, is not "predicated" on an elaborated code then it is not at all clear why pupils should succeed or fail according to whether they do or do not possess such a code[2]. It would be interesting to have the results of a similar piece of work in the Arts area of the curriculum in order to see whether the same criticisms of Bernstein's account of failure can be applied there.

It was pointed out earlier (see note six to Section I) that, in a series of papers on the school per se, Bernstein (1975) has presented a descriptive model of the school's past and present condition that is completely at variance with the model he relies upon, in his socio-linguistic papers, in accounting for working class educational failure. This will be discussed briefly to bring this paper to an end[3].

In one of these papers (Bernstein, 1967) he wrote:

> "In secondary schools there has been a move away from the transmission of common values through a ritual order and control based upon position or status, to more personalized forms of control where teachers and taught confront each other as individuals".

And:

> "There is a shift - from a pedagogy which, for the majority of secondary school pupils, was concerned with the learning of standard operations tied to specific contexts - to a pedagogy which emphasizes the exploration of principles".

He goes on to suggest, however, that such changes have only occurred, as yet, primarily at the ideological level:

> "I am not concerned whether all the relationships I refer to are factually present in all schools. Clearly, some schools will have shifted not at all, others more; the shift may be more pronounced in the education of special groups of pupils or within different subjects. I am only interested in the general movement which at the moment may exist at the ideological rather than the substantive level".

Presumably therefore, in these papers, he is viewing schools as actually emphasizing, at present, ritual, positional control and context-tied operations rather than personal control and the exploration of principles. If so, then in the light of the present findings - at least for maths and science subjects - I would argue that this is a more realistic view of the school than that adhered to in his socio-linguistic papers. Furthermore, the factors he refers to - ritual, positional control and context-tied operations - bring his restricted, not his elaborated, code to mind. It is difficult to reconcile such a conclusion with his (1973a) view that " .... schools are predicated upon elaborated code and its system of social relationships".

This apparent contradiction in Bernstein's work, which arises from his adherence, in different places, to either of two diametrically opposed views of the typical condition of our schools with respect to code-relevant factors, remains to be resolved. It might perhaps be suggested that the resolution of such an issue, notwithstanding Bernstein's obvious theoretical contribution to the sociology of education, will be best achieved at the empirical level through school-based studies. This paper has, I hope, demonstrated the feasibility of such work.

Notes to the Conclusion

1. There were no obvious ways in which the school in which this work was carried out was atypical. It is also of interest to note that the observed lessons were the furthest away, in time, in this school, from the external examinations. It might be hypothesized that, as these pupils move through the school and hence nearer the time of sitting external examinations, the teachers may put more, not less, emphasis on rote-learning, context-tied operations, and especially 'tricks' in their lessons.

2. Various reasons, unrelated to the possession or otherwise of codes, why pupils might experience learning difficulties in these lessons, were discussed, in relation to parental occupation, in the note on 'pacing' in Section III.

3. I have discussed this apparent contradiction in my earlier paper on Bernstein (Cooper, 1975)..

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